

This safety data sheet was created pursuant to the requirements of:  
UK REACH Regulations (SI 2019/758 as amended)

**Supersedes date** 05-Oct-2020

**Revision date** 09-Jul-2026

**Revision Number** 6.01

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

|                                 |                                                                                                                                                                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Code(s)</b>          | 00115                                                                                                                                                                                                                                                                              |
| <b>Safety data sheet number</b> | 00115                                                                                                                                                                                                                                                                              |
| <b>Product Name</b>             | PHOSPHORIC ACID 80-85%                                                                                                                                                                                                                                                             |
| <b>Index No</b>                 | 015-011-00-6                                                                                                                                                                                                                                                                       |
| <b>EC Number</b>                | 231-633-2                                                                                                                                                                                                                                                                          |
| <b>CAS No</b>                   | 7664-38-2                                                                                                                                                                                                                                                                          |
| <b>Synonyms</b>                 | PHOSPHORIC ACID 85% PRS CODEX, PHOSPHORIC ACID 85% SOL ZW, PHOSPHORIC ACID 85% SOL ITA, PHOSPHORIC ACID P5 81.5% SOL, PHOSPHORIC ACID P5 85% SOL, PHOSPHORIC ACID 85% SOL, PHOSPHORIC ACID 81% SOL, PHOSPHORIC ACID 85% SOL NO, PHOSPHORIC ACID 35%, PHOSPHORIC ACID 85% FG ELX*** |
| <b>Pure substance/mixture</b>   | Substance                                                                                                                                                                                                                                                                          |
| Contains PHOSPHORIC ACID        |                                                                                                                                                                                                                                                                                    |
| <b>Molecular weight</b>         | 98 g/mol                                                                                                                                                                                                                                                                           |

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

|                        |                                                                                                                                                                                                                                                                                                                                      |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Recommended use</b> | Adhesives<br>Chemical intermediate<br>Cleaning agent<br>Detergent<br>Fertiliser<br>Fuel additive<br>Laboratory chemicals<br>Leather and paper industry<br>Lubricant<br>Metal surface treatment<br>paint<br>pH control<br>Polymers<br>Textiles<br>Water treatment chemical<br>For further information, see attached Exposure Scenario |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR

For further information, please contact

**E-mail address** SDS.EMEA@univarsolutions.com

Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

**1.4. Emergency telephone number**

Emergency Telephone SGS - +32 (0)3 575 55 55 (24h)

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

|                                          |                                    |
|------------------------------------------|------------------------------------|
| <b>Acute toxicity - Oral</b>             | Category 4 - (H302)                |
| <b>Skin corrosion/irritation</b>         | Category 1 Sub-category B - (H314) |
| <b>Serious eye damage/eye irritation</b> | Category 1 - (H318)                |

**2.2. Label elements**

Contains PHOSPHORIC ACID

**Signal word**

Danger

**Hazard statements**

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

**Precautionary statements**

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P280 - Wear protective gloves/protective clothing and eye/face protection

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor

P321 - Specific treatment (see .? on this label)

P331 - Do NOT induce vomiting

**Additional information**

Acquisition, possession or use by the general public is restricted. This product requires child resistant fastenings if supplied to the

general public. This product requires tactile warnings if supplied to the general public.

### 2.3. Other hazards

No information available.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| Chemical name                 | Weight-% | EC No (EU Index No)            | UK REACH registration number | Classification according to GB CLP (SI 2020/1567 as amended)                            | Specific concentration limit (SCL)                                                         | M-Factor | M-Factor (long-term) |
|-------------------------------|----------|--------------------------------|------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------|----------------------|
| PHOSPHORIC ACID<br>7664-38-2  | 80-85%   | 231-633-2<br>(015-011-00-6)*** | -                            | Met. Corr. 1 (H290)<br>Acute Tox. 4 (H302)<br>Skin Corr. 1B (H314)<br>Eye Dam. 1 (H318) | Eye Irrit. 2 ::<br>10%≤C<25%<br>Skin Irrit. 2 ::<br>10%≤C<25%<br>Skin Corr. 1B ::<br>C≥25% | -        | -                    |
| Non hazardous filler<br>NOCAS | 10 - 20% | -                              | -                            | -                                                                                       | -                                                                                          | -        | -                    |

### Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration ≥ 0.1% (UK REACH Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Inhalation</b>                         | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention. |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.                                                                                                                                                                                                               |
| <b>Skin contact</b>                       | Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Do not use soap or neutralising agents. Chemical burns must be treated promptly by a physician. Apply a sterile dressing. Get immediate medical attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.                                                                        |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.                                                                                                                                                                                                                                                                                                                                            |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to                                                                                                                                                                                                                                                                                                                                                                                |

protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Wear personal protective clothing (see section 8).

#### **4.2. Most important symptoms and effects, both acute and delayed**

|                   |                                                                                          |
|-------------------|------------------------------------------------------------------------------------------|
| <b>Symptoms</b>   | Adverse symptoms may include:. Burning sensation.                                        |
| <b>Inhalation</b> | Coughing and/or wheezing. Headache. Dizziness. Difficulty in breathing.                  |
| <b>Eyes</b>       | Burning sensation. Pain. May cause redness and tearing of the eyes. Causes severe burns. |
| <b>Dermal</b>     | Burning sensation. Pain. Causes severe burns.                                            |

#### **4.3. Indication of any immediate medical attention and special treatment needed**

|                        |                                                                                                                                                                                                                                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Note to doctors</b> | Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

|                                       |                                                                                              |
|---------------------------------------|----------------------------------------------------------------------------------------------|
| <b>Suitable Extinguishing Media</b>   | Product itself does not burn. Use extinguishing agent suitable for type of surrounding fire. |
| <b>Large Fire</b>                     | CAUTION: Use of water spray when fighting fire may be inefficient.                           |
| <b>Unsuitable extinguishing media</b> | Do not scatter spilled material with high pressure water streams.                            |

#### **5.2. Special hazards arising from the substance or mixture**

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Specific hazards arising from the chemical</b> | The product causes burns of eyes, skin and mucous membranes. Contact with metals may evolve flammable hydrogen gas. Thermal decomposition can lead to release of toxic and corrosive gases/vapours. In the case of hot acid reaction with contaminated metals, toxic gaseous phosphine PH <sub>3</sub> may be formed. The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. |
| <b>Hazardous combustion products</b>              | Phosphorus oxides. Phosphine. Carbon oxides.                                                                                                                                                                                                                                                                                                                                                                                                                  |

#### **5.3. Advice for firefighters**

|                                                                       |                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Special protective equipment and precautions for fire-fighters</b> | Evacuate personnel to safe areas. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with flooding quantities of water until well after fire is out. Collect contaminated fire extinguishing water separately. Do not allow it to enter drains or surface water. |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **SECTION 6: Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b> | Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes or clothing. Do not touch or walk through spilled material. Do not breathe vapour or mist. Use personal protection recommended in Section 8. Prevent acid contact with metals. Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other information**

Refer to protective measures listed in Sections 7 and 8.

**For emergency responders**

Use personal protection recommended in Section 8.

**6.2. Environmental precautions****Environmental precautions**

Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

**6.3. Methods and material for containment and cleaning up****Methods for containment**

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

**Methods for cleaning up**

Neutralise with soda ash (sodium carbonate) or lime over area of spill. Flush area with flooding quantities of water.

**Prevention of secondary hazards**

Observe good chemical hygiene practices.

**6.4. Reference to other sections****Reference to other sections**

See section 8 for more information. See section 13 for more information.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling****Advice on safe handling**

Handle product only in closed system or provide appropriate exhaust ventilation. Use only acid-resistant materials. Avoid contact with eyes, skin and clothing. Do not breathe vapour or mist. Use personal protection recommended in Section 8. Never pour water or any water solutions into tanks or containers with acids. DO NOT add water to acid. Always add acid TO water. Dissolution and neutralisation reactions are highly exothermic. Handle all packages and containers carefully to minimise spills. Avoid splashing. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Wash hands and face before breaks and immediately after handling the product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

**7.2. Conditions for safe storage, including any incompatibilities****Storage Conditions**

Keep in an area equipped with acid resistant flooring. Do not stack substance packages one on another. Keep container tightly closed in a dry and well-ventilated place. Protect from direct sunlight. Keep away from food, drink and animal feedingstuffs. Store away from incompatible materials. Nitromethane. Bases. Iron and its compounds. Steel. Aluminium and its compounds. Keep above the chemical's freezing point. See Section 9 for more

information. Keep container closed when not in use. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Protect from moisture. Store locked up. Store away from other materials.

**Packaging materials** stainless steel. Glass. Polyethylene (PE).

### 7.3. Specific end use(s)

#### Specific use(s)

See section 1 for more information.

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits

| Chemical name                | United Kingdom                                        |
|------------------------------|-------------------------------------------------------|
| PHOSPHORIC ACID<br>7664-38-2 | TWA: 1 mg/m <sup>3</sup><br>STEL: 2 mg/m <sup>3</sup> |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### Derived No Effect Level (DNEL) - Workers

| Chemical name                | Oral | Dermal | Inhalation                                                                                   |
|------------------------------|------|--------|----------------------------------------------------------------------------------------------|
| PHOSPHORIC ACID<br>7664-38-2 |      |        | 10.7 mg/m <sup>3</sup> [4] [6]<br>1 mg/m <sup>3</sup> [5] [6]<br>2 mg/m <sup>3</sup> [5] [7] |

[4] Systemic health effects.  
[5] Local health effects.  
[6] Long term.  
[7] Short term.

#### Derived No Effect Level (DNEL) - General Public

| Chemical name                | Oral                     | Dermal | Inhalation                                                       |
|------------------------------|--------------------------|--------|------------------------------------------------------------------|
| PHOSPHORIC ACID<br>7664-38-2 | 0.1 mg/kg bw/day [4] [6] |        | 4.57 mg/m <sup>3</sup> [4] [6]<br>0.36 mg/m <sup>3</sup> [5] [6] |

[4] Systemic health effects.  
[5] Local health effects.  
[6] Long term.

**Predicted No Effect Concentration (PNEC)** No information available.

### 8.2. Exposure controls

| Engineering controls                                                                                                                                                                                                                                                                                                   | Handle product only in closed system or provide appropriate exhaust ventilation. Use engineering controls to keep exposures below the OEL or DNEL. Ensure that eyewash stations and safety showers are close to the workstation location. Fill or empty containers using automatic systems (suction pumps, etc.).                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|--|--|---------------------|----------------------|-----------------|--------------------|----------------------|----------------|---------|-------------|--|--|--|--|
| <u>Personal protective equipment</u>                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Eye/face protection                                                                                                                                                                                                                                                                                                    | Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166. Tight sealing safety goggles. Face protection shield.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Hand protection                                                                                                                                                                                                                                                                                                        | Chemical resistant gloves required for prolonged or repeated contact. Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions. Examples of preferred glove barrier materials include: Nitrile rubber. Polychloroprene. Polyvinyl chloride (PVC). Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374. Wear suitable gloves. Impervious gloves.                                                                                                                                                                      |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| <table><tr><th colspan="4">Gloves</th></tr><tr><td>Duration of contact</td><td>PPE - Glove material</td><td>Glove thickness</td><td>Break through time</td></tr><tr><td>Long term (repeated)</td><td>Nitrile rubber</td><td>0.11 mm</td><td>480 minutes</td></tr><tr><td></td><td></td><td></td><td></td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Gloves          |                    |  |  | Duration of contact | PPE - Glove material | Glove thickness | Break through time | Long term (repeated) | Nitrile rubber | 0.11 mm | 480 minutes |  |  |  |  |
| Gloves                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Duration of contact                                                                                                                                                                                                                                                                                                    | PPE - Glove material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Glove thickness | Break through time |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Long term (repeated)                                                                                                                                                                                                                                                                                                   | Nitrile rubber                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.11 mm         | 480 minutes        |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Skin and body protection                                                                                                                                                                                                                                                                                               | Wear suitable protective clothing. Acid-proof protective clothing. Rubber boots. Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Respiratory protection                                                                                                                                                                                                                                                                                                 | None under normal use conditions. In case of inadequate ventilation wear respiratory protection. Respirator fitted with an acid vapour filter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| General hygiene considerations                                                                                                                                                                                                                                                                                         | Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Wash hands and face before breaks and immediately after handling the product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |
| Environmental exposure controls                                                                                                                                                                                                                                                                                        | Avoid release to the environment. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.                                                                                                                                                                                                                                                                                                                                                                                               |                 |                    |  |  |                     |                      |                 |                    |                      |                |         |             |  |  |  |  |

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                        |                                 |
|------------------------|---------------------------------|
| <b>Physical state</b>  | Liquid                          |
| <b>Appearance</b>      | Viscous liquid                  |
| <b>Colour</b>          | Colourless to pale yellow       |
| <b>Odour</b>           | Odourless., to, Characteristic. |
| <b>Odour threshold</b> | No information available        |

| <b><u>Property</u></b>                         | <b><u>Values</u></b>      | <b><u>Remarks • Method</u></b> |
|------------------------------------------------|---------------------------|--------------------------------|
| <b>Melting point / freezing point</b>          | 80%: 4 °C - 85%: 21 °C    |                                |
| <b>Initial boiling point and boiling range</b> | 80%: 150 °C - 85%: 158 °C |                                |
| <b>Flammability</b>                            |                           | The product is not flammable.  |
| <b>Flammability Limit in Air</b>               |                           | No information available.      |

|                                        |                                  |                                  |
|----------------------------------------|----------------------------------|----------------------------------|
| Upper flammability or explosive limits |                                  |                                  |
| Lower flammability or explosive limits |                                  |                                  |
| Flash point                            |                                  | The product is not flammable.    |
| Autoignition temperature               |                                  | Not applicable.                  |
| Decomposition temperature              |                                  | Not applicable.                  |
| pH                                     | < 1                              |                                  |
| pH (as aqueous solution)               |                                  | No information available.        |
| Kinematic viscosity                    | 30.5 mm <sup>2</sup> /s          | @ 25 °C.                         |
| Dynamic viscosity                      | 85%: 32 mPa s                    | @ 30 °C.                         |
| Water solubility                       | Miscible with water              |                                  |
| Solubility(ies)                        | soluble in Alcohol               |                                  |
| Partition coefficient                  |                                  | No information available.        |
| Vapour pressure                        | 2 hPa                            | @ 20 °C.                         |
| Relative density                       | 85%: 1.69 - 1.83                 | @ 18 - 25 °C. Pycnometer method. |
| Bulk density                           |                                  | No information available         |
| Liquid Density                         | 80%: 1.631 g/ml; 85%: 1.689 g/ml | @ 20 °C                          |
| Relative vapour density                | 3.4                              | @ 20°C (air = 1).                |
| Particle characteristics               |                                  | Not applicable.                  |
| Particle Size                          | .                                |                                  |
| Particle Size Distribution             | .                                |                                  |
| Explosive properties                   | No information available         |                                  |
| Oxidising properties                   | No information available         |                                  |
| <b>9.2. Other information</b>          |                                  |                                  |
| Molecular weight                       | 98 g/mol                         |                                  |

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

|            |                                                                                                                                 |
|------------|---------------------------------------------------------------------------------------------------------------------------------|
| Reactivity | Reacts with:.. Strong bases. In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air. |
|------------|---------------------------------------------------------------------------------------------------------------------------------|

### 10.2. Chemical stability

|           |                                              |
|-----------|----------------------------------------------|
| Stability | Stable under recommended storage conditions. |
|-----------|----------------------------------------------|

#### Explosion data

|                                  |       |
|----------------------------------|-------|
| Sensitivity to mechanical impact | None. |
| Sensitivity to static discharge  | None. |

### 10.3. Possibility of hazardous reactions

|                                    |                               |
|------------------------------------|-------------------------------|
| Possibility of hazardous reactions | None under normal processing. |
|------------------------------------|-------------------------------|

### 10.4. Conditions to avoid

|                     |                                                                                                                |
|---------------------|----------------------------------------------------------------------------------------------------------------|
| Conditions to avoid | High temperatures, light, contact of hot acid with metals. Exposure to air or moisture over prolonged periods. |
|---------------------|----------------------------------------------------------------------------------------------------------------|

### 10.5. Incompatible materials

|                        |                                                                                                                               |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Incompatible materials | Nitromethane. Bases. Iron and its compounds. Steel. Aluminium and its compounds. Metal oxides. Acids. Bases. Oxidising agent. |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------|

### 10.6. Hazardous decomposition products

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Hazardous decomposition products | Thermal decomposition can lead to release of toxic/corrosive gases and vapours. |
|----------------------------------|---------------------------------------------------------------------------------|



Phosphorus oxides. Phosphine. Carbon oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Information on likely routes of exposure

#### Product Information

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | Inhalation of vapours in high concentration may cause irritation of respiratory system. Not acutely toxic by inhalation. Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.                                           |
| <b>Eye contact</b>  | Causes serious eye damage. Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Skin contact</b> | Causes severe burns. Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Ingestion</b>    | Harmful if swallowed. Can burn mouth, throat, and stomach. Ingestion causes burns of the upper digestive and respiratory tracts. Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. |

#### Symptoms related to the physical, chemical and toxicological characteristics

|                 |                                                                                                                                                                                                                                                                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Symptoms</b> | Corrosive to the eyes and may cause severe damage including blindness. May cause respiratory irritation. Coughing and/or wheezing. Ingestion may cause: Stomach pain. Gastrointestinal burns. Redness. Burning. May cause blindness. Coughing and/ or wheezing. |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Acute toxicity

#### Numerical measures of toxicity

#### Component Information

| Chemical name   | Oral LD50            | Dermal LD50            | Inhalation LC50                        |
|-----------------|----------------------|------------------------|----------------------------------------|
| PHOSPHORIC ACID | = 1518 mg/kg ( Rat ) | >2000 mg/kg ( Rabbit ) | > 850 mg/m <sup>3</sup> ( Rat ) 1 h*** |

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                                          |                                                                                                                             |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>         | Causes severe burns. Classification based on data available for ingredients. Causes severe skin burns and eye damage.       |
| <b>Serious eye damage/eye irritation</b> | Causes serious eye damage. Classification based on data available for ingredients. Causes serious eye damage. Causes burns. |

**Respiratory or skin sensitisation** Based on available data the classification criteria are not met.

**Germ cell mutagenicity** Based on available data the classification criteria are not met.

| Product Information                                              |         |                            |
|------------------------------------------------------------------|---------|----------------------------|
| Method                                                           | Species | Results                    |
| OECD Test No. 471: Bacterial Reverse Mutation Test               |         | Not mutagenic in AMES Test |
| OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test |         | Negative                   |

Component Information  
PHOSPHORIC ACID (7664-38-2)

| Method                                                           | Species   | Results  |
|------------------------------------------------------------------|-----------|----------|
| OECD Test No. 471: Bacterial Reverse Mutation Test               | Ames Test | Negative |
| OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test | in vitro  | Negative |

**Carcinogenicity** Based on available data the classification criteria are not met.

**Reproductive toxicity** Based on available data the classification criteria are not met.

PHOSPHORIC ACID (7664-38-2)

| Method                                                                                                               | Species | Results           |
|----------------------------------------------------------------------------------------------------------------------|---------|-------------------|
| OECD Test No. 422: Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test | Rat     | NOAEL > 410 mg/kg |

**STOT - single exposure** Based on available data the classification criteria are not met.

**STOT - repeated exposure** Based on available data the classification criteria are not met.

**Aspiration hazard** Based on available data the classification criteria are not met.

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity** Based on available data, the classification criteria are not met. Substantial amounts of the product may lead to a local change in acidity in small water systems which may have adverse effects on aquatic organisms.

PHOSPHORIC ACID (7664-38-2)

| Method                                                                        | Species                 | Endpoint type | Effective dose   | Exposure time | Results |
|-------------------------------------------------------------------------------|-------------------------|---------------|------------------|---------------|---------|
|                                                                               | Lepomis macrochirus     | LC50          | 3.00 - 3.25 mg/L | 96 hours      |         |
| OECD Test No. 202: Daphnia sp., Acute Immobilisation Test                     | Daphnia magna           | EC50          | > 100 mg/L       | 48 hours      |         |
| OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test | Desmodesmus subspicatus | ErC50         | > 100 mg/L       | 72 hours      |         |
| OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test | Desmodesmus subspicatus | NOEC          | > 100 mg/L       | 72 hours      |         |

**12.2. Persistence and degradability**

**Persistence and degradability** The methods for determining biodegradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

**Bioaccumulation** Not applicable to inorganic substances.

**12.4. Mobility in soil**

**Mobility in soil** Miscible with water.

**12.5. Results of PBT and vPvB assessment**

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB.

| Chemical name   | PBT and vPvB assessment            |
|-----------------|------------------------------------|
| PHOSPHORIC ACID | The substance is not PBT / vPvB*** |

**12.6. Other adverse effects**

No information available.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

**Waste from residues/unused products** Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority. Do not discharge onto the ground or into water courses.

**Contaminated packaging** Do not reuse empty containers. Empty remaining contents. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**SECTION 14: Transport information****IATA**

**14.1 UN number or ID number** UN1805  
**14.2 UN proper shipping name** PHOSPHORIC ACID, SOLUTION  
**14.3 Transport hazard class(es)** 8

|                                   |                |
|-----------------------------------|----------------|
| 14.4 Packing group                | III            |
| 14.5 Environmental hazards        | Not applicable |
| 14.6 Special precautions for user |                |
| Special Provisions                | A3, A803       |
| ERG Code                          | 8L             |

**IMDG**

|                                                              |                          |
|--------------------------------------------------------------|--------------------------|
| 14.1 UN number or ID number                                  | UN1805                   |
| 14.2 UN proper shipping name                                 | PHOSPHORIC ACID SOLUTION |
| 14.3 Transport hazard class(es)                              | 8                        |
| 14.4 Packing group                                           | III                      |
| 14.5 Environmental hazards                                   | Not applicable           |
| 14.6 Special precautions for user                            |                          |
| Special Provisions                                           | 223                      |
| EmS-No                                                       | F-A, S-B                 |
| 14.7 Maritime transport in bulk according to IMO instruments | No information available |

**RID**

|                                   |                           |
|-----------------------------------|---------------------------|
| 14.1 UN number or ID number       | UN1805                    |
| 14.2 UN proper shipping name      | PHOSPHORIC ACID, SOLUTION |
| 14.3 Transport hazard class(es)   | 8                         |
| 14.4 Packing group                | III                       |
| 14.5 Environmental hazards        | Not applicable            |
| 14.6 Special precautions for user |                           |
| Special Provisions                | None                      |
| Classification code               | C1                        |

**ADR**

|                                   |                           |
|-----------------------------------|---------------------------|
| 14.1 UN number or ID number       | UN1805                    |
| 14.2 UN proper shipping name      | PHOSPHORIC ACID, SOLUTION |
| 14.3 Transport hazard class(es)   | 8                         |
| 14.4 Packing group                | III                       |
| 14.5 Environmental hazards        | Not applicable            |
| 14.6 Special precautions for user |                           |
| Special Provisions                | None                      |
| Classification code               | C1                        |
| Tunnel restriction code           | (E)                       |

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Authorisations and/or restrictions on use:**

This product contains one or more substances subject to restriction (UK REACH - Annex XVII).

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

**Persistent Organic Pollutants**

Not applicable

**Export Notification requirements**

Not applicable

**Named dangerous substances per COMAH Regulations 2015 (as amended)**

Not applicable

**The Ozone-Depleting Substances Regulations 2015**

Not applicable

**The Biocidal Products Regulations 2001 (as amended)**

Not applicable

**The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)**

Not applicable

**Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)**

| Chemical name   | Poisons and Explosive Precursors |
|-----------------|----------------------------------|
| PHOSPHORIC ACID | Poison, Reportable (C ≤ 30%)     |

**International Inventories**

|                      |                                                  |
|----------------------|--------------------------------------------------|
| <b>TSCA</b>          | Contact supplier for inventory compliance status |
| <b>DSL/NDL</b>       | Contact supplier for inventory compliance status |
| <b>EINECS/ELINCS</b> | Contact supplier for inventory compliance status |
| <b>ENCS</b>          | Contact supplier for inventory compliance status |
| <b>IECSC</b>         | Contact supplier for inventory compliance status |
| <b>KECI</b>          | Contact supplier for inventory compliance status |
| <b>PICCS</b>         | Contact supplier for inventory compliance status |
| <b>AIIC</b>          | Contact supplier for inventory compliance status |
| <b>NZIoC</b>         | Contact supplier for inventory compliance status |

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AIIC** - Australian Inventory of Industrial Chemicals  
**NZIoC** - New Zealand Inventory of Chemicals

**15.2. Chemical safety assessment**

**Chemical Safety Report** A Chemical Safety Assessment has been carried out for this substance

**SECTION 16: Other information**

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of H-Statements referred to under section 3**

H290 - May be corrosive to metals  
H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage

**Legend**

SVHC: Substances of Very High Concern for Authorisation:  
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances  
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

**Legend Section 8: Exposure controls/personal protection**

|         |                             |      |                                  |
|---------|-----------------------------|------|----------------------------------|
| TWA     | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value         | *    | Skin designation                 |
| +       | Sensitisers                 |      |                                  |

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**Classification procedure**

|                                                                 |                    |
|-----------------------------------------------------------------|--------------------|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used        |
| Acute oral toxicity                                             | Calculation method |
| Acute dermal toxicity                                           | Calculation method |
| Acute inhalation toxicity - gas                                 | Calculation method |
| Acute inhalation toxicity - vapour                              | Calculation method |
| Acute inhalation toxicity - dust/mist                           | Calculation method |
| Skin corrosion/irritation                                       | Calculation method |
| Serious eye damage/eye irritation                               | Calculation method |
| Respiratory sensitisation                                       | Calculation method |
| Skin sensitisation                                              | Calculation method |
| Mutagenicity                                                    | Calculation method |
| Carcinogenicity                                                 | Calculation method |
| Reproductive toxicity                                           | Calculation method |
| STOT - single exposure                                          | Calculation method |
| STOT - repeated exposure                                        | Calculation method |
| Acute aquatic toxicity                                          | Calculation method |
| Chronic aquatic toxicity                                        | Calculation method |
| Aspiration hazard                                               | Calculation method |
| Ozone                                                           | Calculation method |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)  
 European Chemicals Agency (ECHA) (ECHA\_API)  
 Environmental Protection Agency  
 Acute Exposure Guideline Level(s) (AEGLS)  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 National Institute of Technology and Evaluation (NITE)  
 Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 U.S. National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
 Organisation for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

Prepared By J Forth

Supersedes date 05-Oct-2020

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This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)  
 Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Manufacture of substance  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC1 - Manufacture of substances  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC15 - Use as laboratory reagent  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC1 - Manufacture of substances

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) Use in closed process                                                                             |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |



|                                                                                        |                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure                                               |                                                                                                                                                                                                                                                  |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                           |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                           |
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                                                                                    |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                                |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                          |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment                                                                  |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                             |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                           |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                           |
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                                |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                          |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>In case of inadequate ventilation wear respiratory protection<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                             |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                           |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                           |
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                                |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                          |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment       |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                             |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                           |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                           |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                                                                                    |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                             |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                                                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

## Section 3 - Exposure estimation

### Environmental release category(ies) - ERC1 - Manufacture of substances

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                          |
|----------------------------------------------------|--------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>      |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup>   |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>      |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bodyweight/day |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup>   |

| Process category(ies)                                                                                                         | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term<br>- systemic | 0.04 mg/m <sup>3</sup>   | 0.004                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, short-term<br>- local   | 0.08 mg/m <sup>3</sup>   | 0.04                              |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term<br>- local    | 0.04 mg/m <sup>3</sup>   | 0.04                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup>  | 0.037                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup>  | 0.401                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup>  | 0.401                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                | Worker - inhalative, long-term<br>- systemic | 0.12 mg/m <sup>3</sup>   | 0.011                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>   | 0.12                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                | Worker - inhalative, long-term<br>- local    | 0.12 mg/m <sup>3</sup>   | 0.12                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                      | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                      | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.13 mg/m <sup>3</sup>   | 0.012                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.26 mg/m <sup>3</sup>   | 0.13                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.13 mg/m <sup>3</sup>   | 0.13                              |
| PROC9 - Transfer of substance or preparation into small containers                                                            | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |

|                                                                                                                 |                                              |                       |       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------|-------|
| (dedicated filling line, including weighing)                                                                    |                                              |                       |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup> | 0.2   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup> | 0.2   |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup> | 0.019 |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup> | 0.2   |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup> | 0.2   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
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### Section 1 - Title

**Title** Formulation & (re)packing of substances and mixtures  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC2 - Formulation of preparations (mixtures)  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC15 - Use as laboratory reagent  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC28 - Manual maintenance (cleaning and repair) of machinery  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC2 - Formulation of preparations (mixtures)

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 16667000              |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                       |                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies) | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                                                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available             |
| Covers concentrations up to                                                            | 100%                                                                          |
| Physical form of product                                                               | Liquid                                                                        |
| Exposure duration                                                                      | Avoid carrying out operation for more than 1 hour                             |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |



|                                                                                       |                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC28 - Manual maintenance (cleaning and repair) of machinery                                                                                                                                                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|----------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, long-term - systemic | 0.04 mg/m <sup>3</sup>   | 0.004                             |
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, short-term - local   | 0.08 mg/m <sup>3</sup>   | 0.04                              |
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, long-term - local    | 0.04 mg/m <sup>3</sup>   | 0.04                              |
| PROC2 - Use in closed, continuous process with occasional controlled | Worker - inhalative, long-term - systemic | 0.401 mg/m <sup>3</sup>  | 0.037                             |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| exposure                                                                                                                            |                                              |                         |       |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.12 mg/m <sup>3</sup>  | 0.011 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.12 mg/m <sup>3</sup>  | 0.12  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.13 mg/m <sup>3</sup>  | 0.012 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.26 mg/m <sup>3</sup>  | 0.13  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.13 mg/m <sup>3</sup>  | 0.13  |
| PROC9 - Transfer of substance or                                                                                                    | Worker - inhalative, long-term               | 0.2 mg/m <sup>3</sup>   | 0.019 |

|                                                                                                                          |                                              |                         |       |
|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| preparation into small containers<br>(dedicated filling line, including<br>weighing)                                     | - systemic                                   |                         |       |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing) | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                       | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC15 - Use as laboratory reagent                                                                                       | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                       | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                     | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                     | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                     | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |
| PROC28 - Manual maintenance<br>(cleaning and repair) of machinery                                                        | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC28 - Manual maintenance<br>(cleaning and repair) of machinery                                                        | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC28 - Manual maintenance<br>(cleaning and repair) of machinery                                                        | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Formulation & (re)packing of substances and mixtures  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Process category(ies)** PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC15 - Use as laboratory reagent  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Sector(s) of use** SU22 - Professional uses SU1 - Agriculture, forestry, fishery SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%

#### Amounts used

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 16667000              |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

#### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                           |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                         |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                         |

|                                                                                        |                                                                                                                                                                                |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                           |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                         |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                         |

|                                                                                        |                                                                                                                                                                                |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                           |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                           |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                         |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                         |

|                                                                                        |                                                                                                                                                                                |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                           |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                         |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                         |

|                                                                                        |                                                                                                                     |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                |
| Physical form of product                                                               | Liquid                                                                                                              |
| Exposure duration                                                                      | Avoid carrying out activities involving exposure for more than 15 minutes                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                   |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                          |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                              |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                              |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - systemic | 0.401 mg/m <sup>3</sup>  | 0.037                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term - local   | 0.802 mg/m <sup>3</sup>  | 0.401                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - local    | 0.401 mg/m <sup>3</sup>  | 0.401                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term - systemic | 0.13 mg/m <sup>3</sup>   | 0.012                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term - local   | 0.26 mg/m <sup>3</sup>   | 0.13                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term - local    | 0.13 mg/m <sup>3</sup>   | 0.13                              |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including                               | Worker - inhalative, long-term - systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |

|                                                                                                                 |                                              |                         |       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| weighing)                                                                                                       |                                              |                         |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                               | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                               | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                               | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Formulation & (re)packing of substances and mixtures  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC3 - Formulation in materials  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC7 - Industrial spraying  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC15 - Use as laboratory reagent  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC3 - Formulation in materials

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 16667000              |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |           |
|--------------------------------------------|-----------|
| Receiving water dilution (fresh or marine) | 1800 m3/d |
|--------------------------------------------|-----------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Use in closed process                                                                          |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                                                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies) | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                                                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                       |
| Covers concentrations up to                                                            | 100%                                                                                                                                    |
| Physical form of product                                                               | Liquid                                                                                                                                  |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                       |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90% |

|                                                                                       |                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                                                                            |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC3 - Formulation in materials

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                    | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|----------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure | Worker - inhalative, long-term<br>- systemic | 0.04 mg/m <sup>3</sup>   | 0.004                             |
| PROC1 - Use in closed process, no likelihood of exposure | Worker - inhalative, short-term<br>- local   | 0.08 mg/m <sup>3</sup>   | 0.04                              |
| PROC1 - Use in closed process, no likelihood of exposure | Worker - inhalative, long-term<br>- local    | 0.04 mg/m <sup>3</sup>   | 0.04                              |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.12 mg/m <sup>3</sup>  | 0.011 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.12 mg/m <sup>3</sup>  | 0.12  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.48 mg/m <sup>3</sup>  | 0.045 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.96 mg/m <sup>3</sup>  | 0.48  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.48 mg/m <sup>3</sup>  | 0.48  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.13 mg/m <sup>3</sup>  | 0.012 |
| PROC8b - Transfer of substance or                                                                                                   | Worker - inhalative, short-term              | 0.26 mg/m <sup>3</sup>  | 0.13  |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                   | - local                                      |                        |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.13 mg/m <sup>3</sup> | 0.13  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Industrial use resulting in manufacture of another substance (use of intermediates)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC15 - Use as laboratory reagent  
 PC19 - Intermediate  
**Product category(ies)** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8  
**Sector(s) of use** - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 1000000                |
| Units | t(ons)/year            |



**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                     |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Use in closed process<br>Local exhaust ventilation - efficiency of at least 90%                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Use in closed process<br>Local exhaust ventilation - efficiency of at least 90%                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                  |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Use in closed process<br>Local exhaust ventilation - efficiency of at least 90% |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee                                                                         |

|                                                                             |                                                                                                                                                   |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                                                                              |
| Indoor/Outdoor use                                                          | Indoor                                                                                                                                            |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                            |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                                                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.04 mg/m <sup>3</sup>   | 0.004                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.08 mg/m <sup>3</sup>   | 0.04                              |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.04 mg/m <sup>3</sup>   | 0.04                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.401 mg/m <sup>3</sup>  | 0.037                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.802 mg/m <sup>3</sup>  | 0.401                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.401 mg/m <sup>3</sup>  | 0.401                             |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.12 mg/m <sup>3</sup>  | 0.011 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.12 mg/m <sup>3</sup>  | 0.12  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>   | 0.2   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup> | 0.037 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup> | 0.401 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup> | 0.401 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.13 mg/m <sup>3</sup>  | 0.012 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.26 mg/m <sup>3</sup>  | 0.13  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.13 mg/m <sup>3</sup>  | 0.13  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>   | 0.019 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including                               | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>   | 0.2   |

|                                                                                                                 |                                              |                       |       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------|-------|
| weighing)                                                                                                       |                                              |                       |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup> | 0.2   |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising               | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup> | 0.019 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising               | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup> | 0.2   |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising               | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup> | 0.2   |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup> | 0.019 |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup> | 0.2   |
| PROC15 - Use as laboratory reagent                                                                              | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup> | 0.2   |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Industrial use resulting in manufacture of another substance (use of intermediates)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC15 - Use as laboratory reagent  
**Product category(ies)** PC19 - Intermediate  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 1000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Use in closed process<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                                                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Use in closed process<br>Local exhaust ventilation - efficiency of at least 90%                                                                           |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |



|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------|
| Process category(ies) | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, |
|-----------------------|---------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | including weighing)                                                                                                                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration  
(PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                             | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                          | Worker - inhalative, long-term<br>- systemic | 0.04 mg/m <sup>3</sup>   | 0.004                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                          | Worker - inhalative, short-term<br>- local   | 0.08 mg/m <sup>3</sup>   | 0.04                              |
| PROC1 - Use in closed process, no likelihood of exposure                                                                          | Worker - inhalative, long-term<br>- local    | 0.04 mg/m <sup>3</sup>   | 0.04                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                     | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup>  | 0.037                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                     | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup>  | 0.401                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                     | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup>  | 0.401                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- systemic | 0.12 mg/m <sup>3</sup>   | 0.011                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>   | 0.12                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- local    | 0.12 mg/m <sup>3</sup>   | 0.12                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.401 mg/m <sup>3</sup>  | 0.037                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.802 mg/m <sup>3</sup>  | 0.401                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.401 mg/m <sup>3</sup>  | 0.401                             |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| dedicated facilities                                                                                                          |                                              |                        |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.13 mg/m <sup>3</sup> | 0.012 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.26 mg/m <sup>3</sup> | 0.13  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.13 mg/m <sup>3</sup> | 0.13  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Environmental release category(ies)</b> | ERC6b - Industrial use of reactive processing aids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC21 - Low energy manipulation of substances bound in materials and/or articles<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature<br>PROC25 - Other hot work operations with metals |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment                                                            |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment                                                            |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |



|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                               |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                             |                                                                                                                    |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting |
| Covers concentrations up to | 5%                                                                                                                 |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC25 - Other hot work operations with metals                                                                                                                                  |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8a - Transfer of substance or preparation (charging/discharging)                                                                | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| from/to vessels/large containers at non dedicated facilities                                                                      |                                              |                        |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                 | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC21 - Low energy manipulation of substances bound in materials and/or                                                          | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| articles                                                                                                           |                                              |                        |       |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup> | 0.007 |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup> | 0.07  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Environmental release category(ies)</b> | ERC5 - Industrial use resulting in inclusion into or onto a matrix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC21 - Low energy manipulation of substances bound in materials and/or articles<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature<br>PROC25 - Other hot work operations with metals |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC5 - Industrial use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                   |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                    |
| Covers concentrations up to                                                            | 100%                                                                                              |
| Physical form of product                                                               | Liquid                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                 |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                     |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |



|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                             |                                                                               |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                       | PROC10 - Roller application or brushing                                       |
| Covers concentrations up to                                                 | 100%                                                                          |
| Physical form of product                                                    | Liquid                                                                        |
| Use frequency                                                               | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                                                                                    |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                               |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                             |                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| Covers concentrations up to | 5%                                                                                            |
| Physical form of product    | Solid                                                                                         |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently).                             |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC25 - Other hot work operations with metals                                                                                                                                  |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix

#### **Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### **Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled          | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| exposure                                                                                                                            |                                              |                         |       |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup> | 0.001 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>  | 0.001 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>  | 0.01  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>  | 0.01  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>  | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>   | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>  | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>  | 0.005 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>   | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>  | 0.05  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>   | 0.009 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>   | 0.1   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>   | 0.1   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>  | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>   | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>  | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>  | 0.01  |
| PROC8b - Transfer of substance or                                                                                                   | Worker - inhalative, long-term               | 0.01 mg/m <sup>3</sup>  | 0.01  |

|                                                                                                                 |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                     | - local                                      |                        |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC10 - Roller application or brushing                                                                         | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC10 - Roller application or brushing                                                                         | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC10 - Roller application or brushing                                                                         | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                           | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                           | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                           | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising               | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising               | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                    | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                    | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                               | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                               | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                               | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                               | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                               | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup> | 0.007 |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup> | 0.07  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Environmental release category(ies)</b> | ERC6b - Industrial use of reactive processing aids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC21 - Low energy manipulation of substances bound in materials and/or articles<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature<br>PROC25 - Other hot work operations with metals |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids



Covers concentrations up to 100%  
Amounts used

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                             |                                                                                                                                   |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                       | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities |
| Covers concentrations up to                                                 | 100%                                                                                                                              |
| Physical form of product                                                    | Liquid                                                                                                                            |
| Use frequency                                                               | Covers daily exposures up to 8 hours (unless stated differently).                                                                 |
| Technical conditions and measures to control dispersion from source towards | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                     |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles          |
| Covers concentrations up to                                                            | 5%                                                                                         |
| Physical form of product                                                               | Solid, low dustiness                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC25 - Other hot work operations with metals                                                                                                                                  |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of                                                                    | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparations and articles (multi-stage and/or significant contact)                                                                |                                              |                        |       |
| PROC7 - Industrial spraying                                                                                                       | Worker - inhalative, long-term<br>- systemic | 0.48 mg/m <sup>3</sup> | 0.045 |
| PROC7 - Industrial spraying                                                                                                       | Worker - inhalative, short-term<br>- local   | 0.96 mg/m <sup>3</sup> | 0.48  |
| PROC7 - Industrial spraying                                                                                                       | Worker - inhalative, long-term<br>- local    | 0.48 mg/m <sup>3</sup> | 0.48  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.13 mg/m <sup>3</sup> | 0.012 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.26 mg/m <sup>3</sup> | 0.13  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.13 mg/m <sup>3</sup> | 0.13  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                 | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup> | 0.007 |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup> | 0.07  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Non-metal-surface treatment products  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Process category(ies)** PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles  
**Product category(ies)** PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                         |
| Covers concentrations up to                                                            | 25%                                                                           |
| Physical form of product                                                               | Liquid                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| exposure                                                                               |                                                                                                                                                                                 |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                                                                                      |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 75%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                   | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC10 - Roller application or brushing | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC10 - Roller application or brushing | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC10 - Roller application or brushing | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC11 - Non industrial spraying        | Worker - inhalative, long-term - systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC11 - Non industrial spraying        | Worker - inhalative, short-term - local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC11 - Non industrial spraying        | Worker - inhalative, long-term - local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |

|                                                                                               |                                              |                        |       |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup> | 0.03  |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup> | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>  | 0.028 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>  | 0.3   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- systemic | 0.18 mg/m <sup>3</sup> | 0.017 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, short-term<br>- local   | 0.72 mg/m <sup>3</sup> | 0.36  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- local    | 0.18 mg/m <sup>3</sup> | 0.18  |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term<br>- systemic | 0.45 mg/m <sup>3</sup> | 0.042 |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, short-term<br>- local   | 1.8 mg/m <sup>3</sup>  | 0.9   |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term<br>- local    | 0.45 mg/m <sup>3</sup> | 0.45  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Non-metal-surface treatment products  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release  
 ERC11a - Wide dispersive indoor use of long-life articles and materials with low release  
**Process category(ies)** PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles  
**Product category(ies)** PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)  
**Article categories** AC2 - Machinery, mechanical appliances, electrical/electronic articles AC7 - Metal articles  
**Sector(s) of use** SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release  
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                                                                                         |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                                                                                  |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                                                                                         |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                      |
| Physical form of product                                                               | Solid                                                                                                                                   |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                       |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 75% |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee                                                |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release**

**- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term - systemic | 0.06 mg/m <sup>3</sup>   | 0.006                             |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, short-term - local   | 0.24 mg/m <sup>3</sup>   | 0.12                              |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term - local    | 0.06 mg/m <sup>3</sup>   | 0.06                              |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term - systemic | 0.06 mg/m <sup>3</sup>   | 0.006                             |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, short-term - local   | 0.24 mg/m <sup>3</sup>   | 0.12                              |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term - local    | 0.12 mg/m <sup>3</sup>   | 0.06                              |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term - systemic | 0.15 mg/m <sup>3</sup>   | 0.014                             |
| PROC24 - High (mechanical) energy                                                             | Worker - inhalative, short-term           | 0.6 mg/m <sup>3</sup>    | 0.3                               |



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|                                                                                            |                                           |                        |      |
|--------------------------------------------------------------------------------------------|-------------------------------------------|------------------------|------|
| work-up of substances bound in materials and/or articles                                   | - local                                   |                        |      |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles | Worker - inhalative, long-term<br>- local | 0.15 mg/m <sup>3</sup> | 0.15 |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
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**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Non-metal-surface treatment products  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems  
**Process category(ies)** PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles  
**Product category(ies)** PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)  
**Sector(s) of use** SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |

|       |             |
|-------|-------------|
| Units | t(ons)/year |
|-------|-------------|

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                             |                                                                               |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                       | PROC11 - Non industrial spraying                                              |
| Covers concentrations up to                                                 | 25%                                                                           |
| Physical form of product                                                    | Liquid                                                                        |
| Use frequency                                                               | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                                                                            |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                                                                                      |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| exposure                                                                               |                                                                                                                                                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                                                                                                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 75%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment                                                            |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                           |                        |
|-------------------------------------------|------------------------|
| Worker - inhalative, long-term - local    | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local   | 2 mg/m <sup>3</sup>    |

**Consumer - oral, long-term - systemic**  
**Consumer - inhalative, long-term - systemic**

0.1 mg/kg bw/day  
4.57 mg/m<sup>3</sup>

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.06 mg/m <sup>3</sup>   | 0.006                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.12 mg/m <sup>3</sup>   | 0.06                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.06 mg/m <sup>3</sup>   | 0.06                              |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term - systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, short-term - local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term - local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |
| PROC13 - Treatment of articles by dipping and pouring                                                                               | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC13 - Treatment of articles by dipping and pouring                                                                               | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC13 - Treatment of articles by dipping and pouring                                                                               | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                   | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                   | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                   | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                   | Worker - inhalative, long-term - systemic | 0.3 mg/m <sup>3</sup>    | 0.028                             |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                   | Worker - inhalative, short-term - local   | 0.6 mg/m <sup>3</sup>    | 0.3                               |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                   | Worker - inhalative, long-term - local    | 0.3 mg/m <sup>3</sup>    | 0.3                               |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                       | Worker - inhalative, long-term - systemic | 0.18 mg/m <sup>3</sup>   | 0.017                             |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                       | Worker - inhalative, short-term - local   | 0.72 mg/m <sup>3</sup>   | 0.36                              |

|                                                                                               |                                              |                        |       |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- local    | 0.18 mg/m <sup>3</sup> | 0.18  |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term<br>- systemic | 0.45 mg/m <sup>3</sup> | 0.042 |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, short-term<br>- local   | 1.8 mg/m <sup>3</sup>  | 0.9   |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term<br>- local    | 0.45 mg/m <sup>3</sup> | 0.45  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Non-metal-surface treatment products  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix  
**Process category(ies)** PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles  
**Product category(ies)** PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)  
**Sector(s) of use** SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix  
 - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |



**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                    |
| Covers concentrations up to                                                            | 25%                                                                                      |
| Physical form of product                                                               | Liquid                                                                                   |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                        |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)            |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee |

|                                                                             |                                                                                                                                                   |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                                                                              |
| Indoor/Outdoor use                                                          | Indoor                                                                                                                                            |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                            |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                                                                                      |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 75%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix**

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                   | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC10 - Roller application or brushing | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC10 - Roller application or brushing | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC10 - Roller application or brushing | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC11 - Non industrial spraying        | Worker - inhalative, long-term - systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC11 - Non industrial spraying        | Worker - inhalative, short-term - local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC11 - Non industrial spraying        | Worker - inhalative, long-term - local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |
| PROC13 - Treatment of articles by       | Worker - inhalative, long-term            | 0.03 mg/m <sup>3</sup>   | 0.003                             |

|                                                                                               |                                              |                        |       |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| dipping and pouring                                                                           | - systemic                                   |                        |       |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup> | 0.03  |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup> | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>  | 0.028 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>  | 0.3   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- systemic | 0.18 mg/m <sup>3</sup> | 0.017 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, short-term<br>- local   | 0.72 mg/m <sup>3</sup> | 0.36  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- local    | 0.18 mg/m <sup>3</sup> | 0.18  |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term<br>- systemic | 0.15 mg/m <sup>3</sup> | 0.014 |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles    | Worker - inhalative, long-term<br>- local    | 0.15 mg/m <sup>3</sup> | 0.15  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Surface treatment  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC12a - Industrial processing of articles with abrasive techniques (low release) ERC12b - Industrial processing of articles with abrasive techniques (high release)  
**Process category(ies)** PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
 PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles  
**Product category(ies)** PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)  
**Article categories** AC2 - Machinery, mechanical appliances, electrical/electronic articles AC7 - Metal articles  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC12a - Industrial processing of articles with abrasive techniques (low release)  
 - ERC12b - Industrial processing of articles with abrasive techniques (high release)

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                     |           |
|-------------------------------------|-----------|
| Release fraction to wastewater from | 2000 m3/d |
|-------------------------------------|-----------|

|                                        |  |
|----------------------------------------|--|
| process (initial release prior to RMM) |  |
|----------------------------------------|--|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                                                                                         |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                                                                                  |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                               |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| Covers concentrations up to                                                            | 5%                                                                                            |
| Physical form of product                                                               | Solid                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                 |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee      |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                                                                                      |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC12a - Industrial processing of articles with abrasive techniques (low release) - ERC12b - Industrial processing of articles with abrasive techniques (high release)**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

**Calculation method**

Used CHESAR model  
Used ECETOC TRA model

| Process category(ies)                                                             | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, long-term - systemic | 0.02 mg/m <sup>3</sup>   | 0.002                             |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, short-term - local   | 0.08 mg/m <sup>3</sup>   | 0.04                              |
| PROC21 - Low energy manipulation of                                               | Worker - inhalative, long-term            | 0.02 mg/m <sup>3</sup>   | 0.02                              |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| substances bound in materials and/or articles                                                                      | - local                                      |                        |       |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.8 mg/m <sup>3</sup>  | 0.4   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                         | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                         | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC24 - High (mechanical) energy work-up of substances bound in materials and/or articles                         | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Use in Cleaning Agents (Industrial)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC7 - Industrial spraying  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC10 - Roller application or brushing  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
**Sector(s) of use** SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU20 - Health services

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|      |                        |
|------|------------------------|
| Type | Annual amount per site |
|------|------------------------|

|       |             |
|-------|-------------|
| Value | 1000000     |
| Units | t(ons)/year |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                             |                                                                               |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                       | PROC3 - Use in closed batch process (synthesis or formulation)                |
| Covers concentrations up to                                                 | 25%                                                                           |
| Physical form of product                                                    | Liquid                                                                        |
| Use frequency                                                               | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to                                                   | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| control dispersion from source towards the worker                                     |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term - local   | 0.012 mg/m <sup>3</sup>  | 0.006                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term - systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term - local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term - local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |
| PROC8a - Transfer of substance or                                                                                                   | Worker - inhalative, long-term            | 0.03 mg/m <sup>3</sup>   | 0.003                             |

|                                                                                                                                   |                                              |                         |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                   | - systemic                                   |                         |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to

define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Use in Cleaning Agents (Industrial)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC7 - Industrial spraying  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC10 - Roller application or brushing  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
  
**Sector(s) of use** SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU20 - Health services

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 1000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                           |
| Covers concentrations up to                                                            | 25%                                                                                      |
| Physical form of product                                                               | Liquid                                                                                   |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                        |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)            |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                       |
| Covers concentrations up to                                                            | 25%                                                                           |
| Physical form of product                                                               | Liquid                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                           |                        |
|-------------------------------------------|------------------------|
| Worker - inhalative, long-term - local    | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic | 10.7 mg/m <sup>3</sup> |

**Worker - inhalative, short-term - local** 2 mg/m<sup>3</sup>  
**Consumer - oral, long-term - systemic** 0.1 mg/kg bw/day  
**Consumer - inhalative, long-term - systemic** 4.57 mg/m<sup>3</sup>

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup>  | 0.006                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |

|                                                                                                                                   |                                              |                         |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Use in Cleaning Agents (Industrial)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC7 - Industrial use of substances in closed systems  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC7 - Industrial spraying  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC10 - Roller application or brushing  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
  
**Sector(s) of use** SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU20 - Health services

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC7 - Industrial use of substances in closed systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 1000000                |
| Units | t(ons)/year            |



**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                           |
| Covers concentrations up to                                                            | 25%                                                                                      |
| Physical form of product                                                               | Liquid                                                                                   |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                        |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)            |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                       |
| Covers concentrations up to                                                            | 25%                                                                           |
| Physical form of product                                                               | Liquid                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC7 - Industrial use of substances in closed systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                           |                        |
|-------------------------------------------|------------------------|
| Worker - inhalative, long-term - local    | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic | 10.7 mg/m <sup>3</sup> |

**Worker - inhalative, short-term - local** 2 mg/m<sup>3</sup>  
**Consumer - oral, long-term - systemic** 0.1 mg/kg bw/day  
**Consumer - inhalative, long-term - systemic** 4.57 mg/m<sup>3</sup>

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup>  | 0.006                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>   | 0.03                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>   | 0.03                              |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>   | 0.003                             |

|                                                                                                                                   |                                              |                         |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.012 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.06 mg/m <sup>3</sup>  | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Detergent  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Process category(ies)** PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends  
 PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
**Sector(s) of use** SU20 - Health services SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 5.5                   |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000                   |
| Units | t(ons)/year            |

Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to                                                            | 25%                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                 |



|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems**  
**- ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

|                       |                |                          |                                   |
|-----------------------|----------------|--------------------------|-----------------------------------|
| Process category(ies) | Exposure route | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------|----------------|--------------------------|-----------------------------------|

|                                                                                                                                     |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.12 mg/m <sup>3</sup> | 0.06  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>  | 0.056 |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term               | 0.6 mg/m <sup>3</sup>  | 0.6   |

|                                                                   |                                              |                        |       |
|-------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                   | - local                                      |                        |       |
| PROC13 - Treatment of articles by dipping and pouring             | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC13 - Treatment of articles by dipping and pouring             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC13 - Treatment of articles by dipping and pouring             | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Detergent  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems  
**Process category(ies)** PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends  
 PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
**Sector(s) of use** SU20 - Health services SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 5.5                   |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000                   |
| Units | t(ons)/year            |

Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to                                                            | 25%                                                                                                                           |
| Physical form of product                                                               | Liquid                                                                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                 |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**  
**- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

|                       |                |                          |                                   |
|-----------------------|----------------|--------------------------|-----------------------------------|
| Process category(ies) | Exposure route | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------|----------------|--------------------------|-----------------------------------|



|                                                                                                                                     |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.12 mg/m <sup>3</sup> | 0.06  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>  | 0.056 |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term               | 0.6 mg/m <sup>3</sup>  | 0.6   |

|                                                                   |                                              |                        |       |
|-------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                   | - local                                      |                        |       |
| PROC13 - Treatment of articles by dipping and pouring             | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC13 - Treatment of articles by dipping and pouring             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC13 - Treatment of articles by dipping and pouring             | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup> | 0.03  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Polishes and wax blends  
**Type** Consumer  
**Main user group** Consumer uses: Private households (= general public = consumers)  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Product category(ies)** PC0 - Other Products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
**Sector(s) of use** SU21 - Consumer uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 10%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| Product categories [PC]     | PC31 - Polishes and wax blends                                         |
| Covers concentrations up to | 10%                                                                    |
| Physical form of product    | Liquid                                                                 |
| Amounts used                | Amount per use 30 g/event                                              |
| Exposure duration           | Avoid carrying out activities involving exposure for more than 4 hours |
| Indoor/Outdoor use          | Covers indoor and outdoor use                                          |
| Operational conditions      | Covers use at ambient temperatures                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)          | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|--------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC31 - Polishes and wax blends | Consumer - inhalative, long-term - systemic | 0.16 mg/m <sup>3</sup>   | 0.035                             |
| PC31 - Polishes and wax blends | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
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 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Washing and cleaning products  
**Type** Consumer  
**Main user group** Consumer uses: Private households (= general public = consumers)  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Product category(ies)** PC0 - Other Products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals  
**Sector(s) of use** SU21 - Consumer uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 10%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                             |                                                                         |
|-----------------------------|-------------------------------------------------------------------------|
| Product categories [PC]     | PC35 - Washing and cleaning products (including solvent based products) |
| Covers concentrations up to | 10%                                                                     |
| Physical form of product    | Liquid                                                                  |
| Amounts used                | Amount per use 16.2 g/event                                             |
| Exposure duration           | Avoid carrying out activities involving exposure for more than 4 hours  |
| Indoor/Outdoor use          | Covers indoor and outdoor use                                           |
| Operational conditions      | Covers use at ambient temperatures                                      |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                                                   | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC35 - Washing and cleaning products (including solvent based products) | Consumer - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.002                             |
| PC35 - Washing and cleaning products (including solvent based products) | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                         |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Use in cleaning agents                                                                                                                                                                                                  |
| <b>Type</b>                                | Consumer                                                                                                                                                                                                                |
| <b>Main user group</b>                     | Consumer uses: Private households (= general public = consumers)                                                                                                                                                        |
| <b>Environmental release category(ies)</b> | ERC1 - Manufacture of substances ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                   |
| <b>Product category(ies)</b>               | PC0 - Other Products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals |
| <b>Sector(s) of use</b>                    | SU21 - Consumer uses                                                                                                                                                                                                    |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC1 - Manufacture of substances  
 - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 15%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                             |                                                                         |
|-----------------------------|-------------------------------------------------------------------------|
| Product categories [PC]     | PC35 - Washing and cleaning products (including solvent based products) |
| Covers concentrations up to | 15%                                                                     |
| Physical form of product    | Liquid                                                                  |
| Amounts used                | Amount per use 110 g/event                                              |
| Exposure duration           | Avoid carrying out activities involving exposure for more than 4 hours  |
| Indoor/Outdoor use          | Covers indoor and outdoor use                                           |
| Operational conditions      | Covers use at ambient temperatures                                      |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC1 - Manufacture of substances

- ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Predicted No Effect Concentration  
(PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                                                   | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC35 - Washing and cleaning products (including solvent based products) | Consumer - inhalative, long-term - systemic | 0.069 mg/m <sup>3</sup>  | 0.015                             |
| PC35 - Washing and cleaning products (including solvent based products) | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Environmental release category(ies)</b> | ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Process category(ies)</b>               | <p>PROC1 - Use in closed process, no likelihood of exposure</p> <p>PROC2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)</p> <p>PROC7 - Industrial spraying</p> <p>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC15 - Use as laboratory reagent</p> <p>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting</p> <p>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature</p> |
| <b>Product category(ies)</b>               | <p>PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products</p>                                                                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | <p>SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

### Environmental factors not influenced by risk management

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                             |
|-----------------------------|-----------------------------|
| Process category(ies)       | PROC7 - Industrial spraying |
| Covers concentrations up to | 100%                        |
| Physical form of product    | Liquid                      |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                 |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to                                                            | 100%                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                   |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training               |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies) | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
|-----------------------|-----------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                                     |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers                                                                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| (dedicated filling line, including weighing)                                                                       |                                              |                        |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC6b - Industrial use of reactive processing aids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| <b>Product category(ies)</b>               | PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure                                               |                                                                                                                                                                                 |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                 |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to                                                            | 100%                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                   |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training               |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies) | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
|-----------------------|-----------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process                                           | Worker - inhalative, long-term            | 0.01 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                                     |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| (synthesis or formulation)                                                                                                          | - local                                      |                        |       |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including                               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| weighing)                                                                                                          |                                              |                        |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| <b>Product category(ies)</b>               | PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

### Environmental factors not influenced by risk management

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                             |
|-----------------------------|-----------------------------|
| Process category(ies)       | PROC7 - Industrial spraying |
| Covers concentrations up to | 100%                        |
| Physical form of product    | Liquid                      |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                 |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to                                                            | 100%                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                   |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training               |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies) | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
|-----------------------|-----------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                                     |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers                                                                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| (dedicated filling line, including weighing)                                                                       |                                              |                        |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC7 - Industrial use of substances in closed systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| <b>Product category(ies)</b>               | PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC7 - Industrial use of substances in closed systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                             |
|-----------------------------|-----------------------------|
| Process category(ies)       | PROC7 - Industrial spraying |
| Covers concentrations up to | 100%                        |
| Physical form of product    | Liquid                      |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                 |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to                                                            | 100%                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training               |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies) | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
|-----------------------|-----------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC7 - Industrial use of substances in closed systems

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process                                           | Worker - inhalative, long-term            | 0.01 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                                     |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| (synthesis or formulation)                                                                                                          | - local                                      |                        |       |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including                               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| weighing)                                                                                                          |                                              |                        |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Catalyst  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC15 - Use as laboratory reagent  
**Product category(ies)** PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |

|       |             |
|-------|-------------|
| Units | t(ons)/year |
|-------|-------------|

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                           |
| Covers concentrations up to                                                            | 100%                                                                                     |
| Physical form of product                                                               | Liquid                                                                                   |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                        |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)            |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                    |
|-----------------------|------------------------------------|
| Process category(ies) | PROC15 - Use as laboratory reagent |
|-----------------------|------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids

#### Predicted No Effect Concentration (PNEC)

#### Remarks

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                                | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC15 - Use as laboratory reagent                                                                                                | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                                | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Laboratory activities  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems  
**Process category(ies)** PROC15 - Use as laboratory reagent  
**Product category(ies)** PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products  
  
**Sector(s) of use** SU22 - Professional uses SU24 - Scientific research and development

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems

**Covers concentrations up to** 100%

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                            |
| Covers concentrations up to                                                            | 100%                                                                          |
| Physical form of product                                                               | Liquid                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems

##### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

##### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)              | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC15 - Use as laboratory reagent | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC15 - Use as laboratory reagent | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC15 - Use as laboratory reagent | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |

### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
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**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Phosphates  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles  
**Process category(ies)** PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
**Product category(ies)** PC0 - Other Products  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4  
 - Manufacture of food products SU23 - Recycling

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

#### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|



**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                             | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are

adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
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**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Phosphates  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
**Product category(ies)** PC0 - Other Products  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4  
 - Manufacture of food products SU23 - Recycling

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

#### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

#### Environmental factors not influenced by risk management

|                                    |            |
|------------------------------------|------------|
| Receiving water dilution (fresh or | 18000 m3/d |
|------------------------------------|------------|

|         |  |
|---------|--|
| marine) |  |
|---------|--|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Process category(ies) | PROC8b - Transfer of substance or preparation (charging/discharging) from/to |
|-----------------------|------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | vessels/large containers at dedicated facilities                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)               | Exposure route                 | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------|--------------------------------|--------------------------|-----------------------------------|
| PROC3 - Use in closed batch process | Worker - inhalative, long-term | 0.01 mg/m <sup>3</sup>   | 0.001                             |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| (synthesis or formulation)                                                                                                        | - systemic                                   |                        |       |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Ceramics  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC5 - Industrial use resulting in inclusion into or onto a matrix  
**Process category(ies)** PROC7 - Industrial spraying  
 PROC10 - Roller application or brushing  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting  
**Product category(ies)** PC0 - Other Products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU13 - Manufacture of other non-metallic mineral products SU19 - Building and construction work

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC5 - Industrial use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90% |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                                                             | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC19 - Hand-mixing with intimate contact and only PPE available |
| Covers concentrations up to | 100%                                                              |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)       | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC7 - Industrial spraying | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC7 - Industrial spraying | Worker - inhalative, short-term           | 0.2 mg/m <sup>3</sup>    | 0.1                               |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                                                                    | - local                                      |                        |       |
| PROC7 - Industrial spraying                                                                                        | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.8 mg/m <sup>3</sup>  | 0.4   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Ceramics  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC7 - Industrial spraying  
 PROC10 - Roller application or brushing  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting  
**Product category(ies)** PC0 - Other Products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU13 - Manufacture of other non-metallic mineral products SU19 - Building and construction work

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90% |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                                                             | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC19 - Hand-mixing with intimate contact and only PPE available |
| Covers concentrations up to | 100%                                                              |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)       | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC7 - Industrial spraying | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC7 - Industrial spraying | Worker - inhalative, short-term           | 0.2 mg/m <sup>3</sup>    | 0.1                               |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                                                                    | - local                                      |                        |       |
| PROC7 - Industrial spraying                                                                                        | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>  | 0.019 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.8 mg/m <sup>3</sup>  | 0.4   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Building and construction work  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems  
**Process category(ies)** PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
**Product category(ies)** PC0 - Other Products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents  
**Sector(s) of use** SU19 - Building and construction work SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%

#### Amounts used

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers use up to 4 hours                                                                                                                                                                                                                   |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| exposure               |                                                                                        |
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                             |                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| Covers concentrations up to | 100%                                                                                          |
| Physical form of product    | Solid                                                                                         |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**  
**- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC11 - Non industrial spraying                                                                                                    | Worker - inhalative, long-term - systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |

|                                                                                               |                                              |                        |       |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC11 - Non industrial spraying                                                              | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC11 - Non industrial spraying                                                              | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>  | 0.6   |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                         | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                             | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term<br>- systemic | 0.15 mg/m <sup>3</sup> | 0.014 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term<br>- local    | 0.15 mg/m <sup>3</sup> | 0.15  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- systemic | 0.15 mg/m <sup>3</sup> | 0.014 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, short-term<br>- local   | 0.6 mg/m <sup>3</sup>  | 0.3   |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- local    | 0.15 mg/m <sup>3</sup> | 0.15  |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Ceramics  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems  
**Process category(ies)** PROC10 - Roller application or brushing  
 PROC11 - Non industrial spraying  
 PROC13 - Treatment of articles by dipping and pouring  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents  
**Sector(s) of use** SU13 - Manufacture of other non-metallic mineral products SU19 - Building and construction work SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                      |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers use up to 4 hours                                                                                                                                                                                                                   |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC19 - Hand-mixing with intimate contact and only PPE available |
| Covers concentrations up to | 100%                                                              |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**  
**- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                      | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|----------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC10 - Roller application or brushing                                    | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC10 - Roller application or brushing                                    | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC10 - Roller application or brushing                                    | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC11 - Non industrial spraying                                           | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>    | 0.056                             |
| PROC11 - Non industrial spraying                                           | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>    | 0.6                               |
| PROC11 - Non industrial spraying                                           | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>    | 0.6                               |
| PROC13 - Treatment of articles by dipping and pouring                      | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC13 - Treatment of articles by dipping and pouring                      | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC13 - Treatment of articles by dipping and pouring                      | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC14 - Production of preparations or articles by tableting, compression, | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |



|                                                                                                   |                                              |                        |       |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| extrusion, pelettising                                                                            |                                              |                        |       |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Ceramics  
**Type** Consumer  
**Main user group** Consumer uses: Private households (= general public = consumers)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems  
**Product category(ies)** PC0 - Other Products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents  
**Sector(s) of use** SU21 - Consumer uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                             |                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------|
| Product categories [PC]     | PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents |
| Covers concentrations up to | 1%                                                                                      |
| Physical form of product    | Liquid                                                                                  |
| Amounts used                | Amount per use 50 g/event                                                               |
| Exposure duration           | Avoid carrying out activities involving exposure for more than 4 hours                  |
| Indoor/Outdoor use          | Covers indoor and outdoor use                                                           |
| Operational conditions      | Covers use at ambient temperatures                                                      |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
 - ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Predicted No Effect Concentration**

(PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                                                                   | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents | Consumer - inhalative, long-term - systemic | 0.294 mg/m <sup>3</sup>  | 0.064                             |
| PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Professional use  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release  
 ERC11a - Wide dispersive indoor use of long-life articles and materials with low release  
**Process category(ies)** PROC0 - Other Process  
 PROC21 - Low energy manipulation of substances bound in materials and/or articles  
 PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature  
**Product category(ies)** PC0 - Other Products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents  
**Article categories** AC4 - Stone, plaster, cement, glass and ceramic articles  
**Sector(s) of use** SU13 - Manufacture of other non-metallic mineral products SU19 - Building and construction work SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release  
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 16667000              |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

#### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

Environmental factors not influenced by risk management

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                       |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                     |
| Covers concentrations up to                                                            | 5%                                                                                                                                    |
| Physical form of product                                                               | Solid                                                                                                                                 |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                     |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                  |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                |

|                                                                                        |                                                                                                                                       |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                         |
| Covers concentrations up to                                                            | 5%                                                                                                                                    |
| Physical form of product                                                               | Solid                                                                                                                                 |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                     |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                  |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                |

**Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release**

**- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release**

**Predicted No Effect Concentration (PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term - systemic | 0.03                     | 0.003                             |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, short-term - local   | 0.12                     | 0.06                              |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles             | Worker - inhalative, long-term - local    | 0.03                     | 0.03                              |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term - systemic | 0.03                     | 0.003                             |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, short-term - local   | 0.12                     | 0.06                              |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term - local    | 0.03                     | 0.03                              |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Masterbatch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Environmental release category(ies)</b> | ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU12 - Manufacture of plastics products, including compounding and conversion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                          |
|-----------------------------|----------------------------------------------------------|
| Process category(ies)       | PROC1 - Use in closed process, no likelihood of exposure |
| Covers concentrations up to | 100%                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |



|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| exposure               |                                                                                        |
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to | 100%                                                                                                                          |
| Physical form of product    | Liquid                                                                                                                        |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment

and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term - local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC6 - Calendaring operations                                                                                                    | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Masterbatch  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC5 - Industrial use resulting in inclusion into or onto a matrix  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC6 - Calendaring operations  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds  
  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU12 - Manufacture of plastics products, including compounding and conversion

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC5 - Industrial use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC1 - Use in closed process, no likelihood of exposure          |
| Covers concentrations up to | 100%                                                              |
| Physical form of product    | Liquid                                                            |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently). |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to                                                   | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| control dispersion from source towards the worker                                     |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix**

**Predicted No Effect Concentration (PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.



**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8a - Transfer of substance or                                                                                                   | Worker - inhalative, long-term               | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                                            |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities                                      | - systemic                                   |                        |       |
| PROC8a - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Masterbatch  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC6 - Calendaring operations  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds  
  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU12 - Manufacture of plastics products, including compounding and conversion

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC1 - Use in closed process, no likelihood of exposure          |
| Covers concentrations up to | 100%                                                              |
| Physical form of product    | Liquid                                                            |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently). |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to                                                   | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| control dispersion from source towards the worker                                     |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8a - Transfer of substance or                                                                                                   | Worker - inhalative, long-term               | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                                            |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities                                      | - systemic                                   |                        |       |
| PROC8a - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Masterbatch  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC7 - Industrial use of substances in closed systems  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC6 - Calendaring operations  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds  
  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU12 - Manufacture of plastics products, including compounding and conversion

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC7 - Industrial use of substances in closed systems

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC1 - Use in closed process, no likelihood of exposure          |
| Covers concentrations up to | 100%                                                              |
| Physical form of product    | Liquid                                                            |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently). |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to                                                   | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| control dispersion from source towards the worker                                     |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC7 - Industrial use of substances in closed systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8a - Transfer of substance or                                                                                                   | Worker - inhalative, long-term               | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                                            |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities                                      | - systemic                                   |                        |       |
| PROC8a - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at non<br>dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or<br>preparation (charging/discharging)<br>from/to vessels/large containers at<br>dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)                   | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                                       | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Masterbatch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Environmental release category(ies)</b> | ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sector(s) of use</b>                    | SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU6a - Manufacture of wood and wood products SU12 - Manufacture of plastics products, including compounding and conversion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Process category(ies) | PROC1 - Use in closed process, no likelihood of exposure |
|-----------------------|----------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |



|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to | 100%                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration  
(PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.009                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term              | 0.8 mg/m <sup>3</sup>    | 0.4                               |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                                                                                   | - local                                      |                        |       |
| PROC6 - Calendaring operations                                                                                                    | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Masterbatch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sector(s) of use</b>                    | SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU6a - Manufacture of wood and wood products SU12 - Manufacture of plastics products, including compounding and conversion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Process category(ies) | PROC1 - Use in closed process, no likelihood of exposure |
|-----------------------|----------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Liquid                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to | 100%                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration  
(PNEC)**



**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term              | 0.8 mg/m <sup>3</sup>    | 0.4                               |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                                                                                   | - local                                      |                        |       |
| PROC6 - Calendaring operations                                                                                                    | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Masterbatch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Environmental release category(ies)</b> | ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sector(s) of use</b>                    | SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU6a - Manufacture of wood and wood products SU12 - Manufacture of plastics products, including compounding and conversion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix  
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Process category(ies) | PROC1 - Use in closed process, no likelihood of exposure |
|-----------------------|----------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to | 100%                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix  
- ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix**

**Predicted No Effect Concentration  
(PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                            | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, long-term<br>- systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC6 - Calendaring operations                                                                                                      | Worker - inhalative, short-term              | 0.8 mg/m <sup>3</sup>    | 0.4                               |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
|                                                                                                                                   | - local                                      |                        |       |
| PROC6 - Calendaring operations                                                                                                    | Worker - inhalative, long-term<br>- local    | 0.2 mg/m <sup>3</sup>  | 0.2   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Plastic articles  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC11a - Wide dispersive indoor use of long-life articles and materials with low release  
**Process category(ies)** PROC21 - Low energy manipulation of substances bound in materials and/or articles  
**Product category(ies)** PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds  
  
**Article categories** AC13 - Plastic articles  
**Sector(s) of use** SU0 - Other SU12 - Manufacture of plastics products, including compounding and conversion SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                                                                                          |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                                                                                         |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                             | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, long-term - systemic | 0.03                     | 0.003                             |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, short-term - local   | 0.12                     | 0.06                              |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, long-term - local    | 0.03                     | 0.03                              |

### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Consumer  
**Type** Consumer  
**Main user group** Consumer uses: Private households (= general public = consumers)  
**Environmental release category(ies)** ERC11a - Wide dispersive indoor use of long-life articles and materials with low release  
**Product category(ies)** PC0 - Other Products PC9a - Coatings and paints, thinners, paint removers PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC32 - Polymer preparations and compounds  
  
**Article categories** AC13 - Plastic articles  
**Sector(s) of use** SU21 - Consumer uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Covers concentrations up to** 100%

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                             |                                                                              |
|-----------------------------|------------------------------------------------------------------------------|
| Product categories [PC]     | PC32 - Polymer preparations and compounds                                    |
| Covers concentrations up to | 5%                                                                           |
| Exposure duration           | Avoid carrying out activities involving exposure for more than 4 hours       |
| Risk management measures    | Wear gloves according to EN 374 to protect against skin effects from powders |
| Indoor/Outdoor use          | Indoor                                                                       |
| Operational conditions      | Covers use at ambient temperatures                                           |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                     | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC32 - Polymer preparations and compounds | Consumer - inhalative, long-term - systemic | 0 mg/m <sup>3</sup>      | 0                                 |
| PC32 - Polymer preparations and compounds | Consumer - oral, long-term - systemic       | 0.083 mg/kg bw/day       | 0.83                              |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Water Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Environmental release category(ies)</b> | ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC6 - Calendaring operations<br>PROC7 - Industrial spraying<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC26 - Handling of solid inorganic substances at ambient temperature |
| <b>Product category(ies)</b>               | PC16 - Heat transfer fluids PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36 - Water softeners PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                    |
| Physical form of product                                                               | Liquid                                                                                                                                  |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                       |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90% |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>90%                                |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                                                             | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC26 - Handling of solid inorganic substances at ambient temperature                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration**



(PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, short-term - local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, short-term - local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC26 - Handling of solid inorganic substances at ambient temperature                                             | Worker - inhalative, long-term<br>- systemic | 0.27 mg/m <sup>3</sup> | 0.025 |
| PROC26 - Handling of solid inorganic substances at ambient temperature                                             | Worker - inhalative, short-term<br>- local   | 0.54 mg/m <sup>3</sup> | 0.27  |
| PROC26 - Handling of solid inorganic substances at ambient temperature                                             | Worker - inhalative, long-term<br>- local    | 0.27 mg/m <sup>3</sup> | 0.27  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Water Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Environmental release category(ies)</b> | ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC6 - Calendaring operations<br>PROC7 - Industrial spraying<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC26 - Handling of solid inorganic substances at ambient temperature |
| <b>Product category(ies)</b>               | PC16 - Heat transfer fluids PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36 - Water softeners PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Process category(ies) | PROC1 - Use in closed process, no likelihood of exposure |
|-----------------------|----------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Process category(ies) | PROC19 - Hand-mixing with intimate contact and only PPE available |
|-----------------------|-------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC26 - Handling of solid inorganic substances at ambient temperature                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                         | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term<br>- systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, short-term<br>- local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term<br>- local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC9 - Transfer of substance or                                                                                              | Worker - inhalative, short-term              | 0.02 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                             |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation into small containers<br>(dedicated filling line, including<br>weighing)                                        | - local                                      |                        |       |
| PROC9 - Transfer of substance or<br>preparation into small containers<br>(dedicated filling line, including<br>weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations<br>or articles by tableting, compression,<br>extrusion, pelettising                     | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC14 - Production of preparations<br>or articles by tableting, compression,<br>extrusion, pelettising                     | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations<br>or articles by tableting, compression,<br>extrusion, pelettising                     | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                        | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                        | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                                                        | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed<br>processing operations with<br>minerals/metals at elevated<br>temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed<br>processing operations with<br>minerals/metals at elevated<br>temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed<br>processing operations with<br>minerals/metals at elevated<br>temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC26 - Handling of solid inorganic<br>substances at ambient temperature                                                   | Worker - inhalative, long-term<br>- systemic | 0.27 mg/m <sup>3</sup> | 0.025 |
| PROC26 - Handling of solid inorganic<br>substances at ambient temperature                                                   | Worker - inhalative, short-term<br>- local   | 0.54 mg/m <sup>3</sup> | 0.27  |
| PROC26 - Handling of solid inorganic<br>substances at ambient temperature                                                   | Worker - inhalative, long-term<br>- local    | 0.27 mg/m <sup>3</sup> | 0.27  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Water Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Environmental release category(ies)</b> | ERC7 - Industrial use of substances in closed systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC6 - Calendaring operations<br>PROC7 - Industrial spraying<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC26 - Handling of solid inorganic substances at ambient temperature |
| <b>Product category(ies)</b>               | PC16 - Heat transfer fluids PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36 - Water softeners PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC7 - Industrial use of substances in closed systems

**Covers concentrations up to** 100%

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                          |
|-----------------------|----------------------------------------------------------|
| Process category(ies) | PROC1 - Use in closed process, no likelihood of exposure |
|-----------------------|----------------------------------------------------------|

|                             |      |
|-----------------------------|------|
| Covers concentrations up to | 100% |
|-----------------------------|------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |

|                                          |                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure |                                                                                        |
| Indoor/Outdoor use                       | Indoor                                                                                 |
| Operational conditions                   | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC19 - Hand-mixing with intimate contact and only PPE available |
| Covers concentrations up to | 100%                                                              |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC26 - Handling of solid inorganic substances at ambient temperature                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC7 - Industrial use of substances in closed systems

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment

and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, short-term - local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC6 - Calendaring operations                                                                                                | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, short-term - local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |
| PROC7 - Industrial spraying                                                                                                   | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |

|                                                                                                                    |                                              |                        |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| weighing)                                                                                                          |                                              |                        |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC26 - Handling of solid inorganic substances at ambient temperature                                             | Worker - inhalative, long-term<br>- systemic | 0.27 mg/m <sup>3</sup> | 0.025 |
| PROC26 - Handling of solid inorganic substances at ambient temperature                                             | Worker - inhalative, short-term<br>- local   | 0.54 mg/m <sup>3</sup> | 0.27  |
| PROC26 - Handling of solid inorganic substances at ambient temperature                                             | Worker - inhalative, long-term<br>- local    | 0.27 mg/m <sup>3</sup> | 0.27  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Water Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Environmental release category(ies)</b> | ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC11 - Non industrial spraying<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting |
| <b>Product category(ies)</b>               | PC0 - Other Products PC16 - Heat transfer fluids PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36 - Water softeners PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Sector(s) of use</b>                    | SU22 - Professional uses SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                       |                                                                               |
|-----------------------|-------------------------------------------------------------------------------|
| Process category(ies) | PROC2 - Use in closed, continuous process with occasional controlled exposure |
|-----------------------|-------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to                                                            | 100%                                                                                                                          |
| Physical form of product                                                               | Liquid                                                                                                                        |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                 |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training                             |



|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers exposure up to 4 hours                                                                                                                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                    |
|-----------------------|------------------------------------------------------------------------------------|
| Process category(ies) | PROC22 - Potentially closed processing operations with minerals/metals at elevated |
|-----------------------|------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | temperature; industrial setting                                                                                                                                                                                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems - ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC6 - Calendaring operations                                                | Worker - inhalative, long-term - systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC6 - Calendaring operations                                                | Worker - inhalative, short-term - local   | 0.8 mg/m <sup>3</sup>    | 0.4                               |
| PROC6 - Calendaring operations                                                | Worker - inhalative, long-term - local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging)          | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| from/to vessels/large containers at non dedicated facilities                                                                      |                                              |                        |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>  | 0.056 |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>  | 0.6   |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Water Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC11 - Non industrial spraying<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting |
| <b>Product category(ies)</b>               | PC16 - Heat transfer fluids PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36 - Water softeners PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Sector(s) of use</b>                    | SU22 - Professional uses SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                                               |
|-----------------------------|-------------------------------------------------------------------------------|
| Process category(ies)       | PROC2 - Use in closed, continuous process with occasional controlled exposure |
| Covers concentrations up to | 1%                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers exposure up to 4 hours                                                                                                                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                                                    |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|
| Process category(ies) | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                        | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC6 - Calendaring operations                                                                               | Worker - inhalative, long-term - systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC6 - Calendaring operations                                                                               | Worker - inhalative, short-term - local   | 0.8 mg/m <sup>3</sup>    | 0.4                               |
| PROC6 - Calendaring operations                                                                               | Worker - inhalative, long-term - local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |



|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| dedicated facilities                                                                                                              |                                              |                        |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>  | 0.056 |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>  | 0.6   |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

## **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Water Treatment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Environmental release category(ies)</b> | ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor use of substances in closed systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC6 - Calendaring operations<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC11 - Non industrial spraying<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting |
| <b>Product category(ies)</b>               | PC16 - Heat transfer fluids PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36 - Water softeners PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Sector(s) of use</b>                    | SU22 - Professional uses SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC9a - Wide dispersive indoor use of substances in closed systems  
- ERC9b - Wide dispersive outdoor use of substances in closed systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                                               |
|-----------------------------|-------------------------------------------------------------------------------|
| Process category(ies)       | PROC2 - Use in closed, continuous process with occasional controlled exposure |
| Covers concentrations up to | 1%                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC6 - Calendaring operations                                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid                                                                                                                                                                           |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                     |
| Use frequency                                                                          | Covers exposure up to 4 hours                                                                                                                                                                                                              |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 95%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                                                                    |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|
| Process category(ies) | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                                                                                  |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC9a - Wide dispersive indoor use of substances in closed systems  
- ERC9b - Wide dispersive outdoor use of substances in closed systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                        | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC6 - Calendaring operations                                                                               | Worker - inhalative, long-term - systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC6 - Calendaring operations                                                                               | Worker - inhalative, short-term - local   | 0.8 mg/m <sup>3</sup>    | 0.4                               |
| PROC6 - Calendaring operations                                                                               | Worker - inhalative, long-term - local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| dedicated facilities                                                                                                              |                                              |                        |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term<br>- systemic | 0.6 mg/m <sup>3</sup>  | 0.056 |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term<br>- local    | 0.6 mg/m <sup>3</sup>  | 0.6   |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

## **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Greasing at high energy conditions  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC17 - Lubrication at high energy conditions and in partly open process  
**Product category(ies)** PC24 - Lubricants, greases, release products  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
 SU17 - General manufacturing

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

#### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

#### Environmental factors not influenced by risk management

|                                    |            |
|------------------------------------|------------|
| Receiving water dilution (fresh or | 18000 m3/d |
|------------------------------------|------------|

|         |  |
|---------|--|
| marine) |  |
|---------|--|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                           |
|-----------------------|---------------------------------------------------------------------------|
| Process category(ies) | PROC17 - Lubrication at high energy conditions and in partly open process |
|-----------------------|---------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                      | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term - systemic | 0.001 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, short-term - local   | 0.002 mg/m <sup>3</sup>  | 0.001                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                 | Worker - inhalative, long-term - local    | 0.001 mg/m <sup>3</sup>  | 0.001                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC17 - Lubrication at high energy conditions and in partly open process                                                     | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC17 - Lubrication at high energy conditions and in partly open process                                                     | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>  | 0.1   |
| PROC17 - Lubrication at high energy conditions and in partly open process                                                     | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Fertiliser                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems<br>ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Process category(ies)</b>               | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC11 - Non industrial spraying<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC12 - Fertilisers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Sector(s) of use</b>                    | SU1 - Agriculture, forestry, fishery<br>SU22 - Professional uses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                             |                                                                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) |
| Covers concentrations up to | 100%                                                                                                                                |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                 |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to                                                            | 100%                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                   |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training               |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                 | PROC11 - Non industrial spraying                                                                                                                                                |
| Covers concentrations up to                                                           | 100%                                                                                                                                                                            |
| Physical form of product                                                              | Liquid                                                                                                                                                                          |
| Use frequency                                                                         | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                      |                                                                               |
|--------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                | PROC19 - Hand-mixing with intimate contact and only PPE available             |
| Covers concentrations up to          | 100%                                                                          |
| Physical form of product             | Liquid                                                                        |
| Use frequency                        | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| control dispersion from source towards the worker                                     |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**  
**- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |



|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| dedicated facilities                                                                                                          |                                              |                        |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC11 - Non industrial spraying                                                                                              | Worker - inhalative, long-term<br>- systemic | 0.45 mg/m <sup>3</sup> | 0.042 |
| PROC11 - Non industrial spraying                                                                                              | Worker - inhalative, short-term<br>- local   | 0.9 mg/m <sup>3</sup>  | 0.45  |
| PROC11 - Non industrial spraying                                                                                              | Worker - inhalative, long-term<br>- local    | 0.45 mg/m <sup>3</sup> | 0.45  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                             | Worker - inhalative, long-term<br>- systemic | 0.05 mg/m <sup>3</sup> | 0.005 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                             | Worker - inhalative, short-term<br>- local   | 0.1 mg/m <sup>3</sup>  | 0.05  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                             | Worker - inhalative, long-term<br>- local    | 0.05 mg/m <sup>3</sup> | 0.05  |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Fertiliser                                                                                                                                              |
| <b>Type</b>                                | Consumer                                                                                                                                                |
| <b>Main user group</b>                     | Consumer uses: Private households (= general public = consumers)                                                                                        |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems<br>ERC8e - Wide dispersive outdoor use of reactive substances in open systems |
| <b>Product category(ies)</b>               | PC12 - Fertilisers                                                                                                                                      |
| <b>Sector(s) of use</b>                    | SU21 - Consumer uses                                                                                                                                    |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|             |               |
|-------------|---------------|
| <b>Type</b> | Municipal STP |
|-------------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|                 |                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------|
| <b>Disposal</b> | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|-----------------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                                    |                                    |
|------------------------------------|------------------------------------|
| <b>Product categories [PC]</b>     | PC12 - Fertilisers                 |
| <b>Covers concentrations up to</b> | 25%                                |
| <b>Physical form of product</b>    | Liquid                             |
| <b>Amounts used</b>                | 5000 g/event                       |
| <b>Indoor/Outdoor use</b>          | Outdoor                            |
| <b>Operational conditions</b>      | Covers use at ambient temperatures |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Predicted No Effect Concentration  
(PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                     | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC32 - Polymer preparations and compounds | Consumer - inhalative, long-term - systemic | 0.025 mg/m <sup>3</sup>  | 0.005                             |
| PC32 - Polymer preparations and compounds | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                            |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Welding and soldering products, flux products                                                                                                                                                              |
| <b>Type</b>                                | Worker                                                                                                                                                                                                     |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                                       |
| <b>Process category(ies)</b>               | PROC10 - Roller application or brushing<br>PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                               |
| <b>Product category(ies)</b>               | PC38 - Welding and soldering products, flux products                                                                                                                                                       |
| <b>Sector(s) of use</b>                    | SU0 - Other SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU22 - Professional uses |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure                                               |                                                                                                                                                                                 |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**  
**- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                             | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC10 - Roller application or brushing                           | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC10 - Roller application or brushing                           | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC10 - Roller application or brushing                           | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Welding and soldering products, flux products                                                                                                           |
| <b>Type</b>                                | Consumer                                                                                                                                                |
| <b>Main user group</b>                     | Consumer uses: Private households (= general public = consumers)                                                                                        |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems<br>ERC8e - Wide dispersive outdoor use of reactive substances in open systems |
| <b>Product category(ies)</b>               | PC38 - Welding and soldering products, flux products                                                                                                    |
| <b>Sector(s) of use</b>                    | SU21 - Consumer uses                                                                                                                                    |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|             |               |
|-------------|---------------|
| <b>Type</b> | Municipal STP |
|-------------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|                 |                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------|
| <b>Disposal</b> | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|-----------------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                                    |                                                      |
|------------------------------------|------------------------------------------------------|
| <b>Product categories [PC]</b>     | PC38 - Welding and soldering products, flux products |
| <b>Covers concentrations up to</b> | 10%                                                  |
| <b>Physical form of product</b>    | Liquid                                               |
| <b>Amounts used</b>                | 5 g/event                                            |
| <b>Indoor/Outdoor use</b>          | Indoor                                               |
| <b>Operational conditions</b>      | Covers use at ambient temperatures                   |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                                | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|------------------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC38 - Welding and soldering products, flux products | Consumer - inhalative, long-term - systemic | 0.029 mg/m <sup>3</sup>  | 0.006                             |
| PC38 - Welding and soldering products, flux products | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Professional                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Process category(ies)</b>               | PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Product category(ies)</b>               | PC2 - Adsorbent(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Sector(s) of use</b>                    | SU1 - Agriculture, forestry, fishery SU2a - Mining (without offshore industries) SU5 - Manufacture of textiles, leather, fur SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU11 - Manufacture of rubber products SU12 - Manufacture of plastics products, including compounding and conversion SU13 - Manufacture of other non-metallic mineral products SU15 - Manufacture of fabricated metal products, except machinery and equipment SU18 - Manufacture of furniture SU22 - Professional uses |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|             |               |
|-------------|---------------|
| <b>Type</b> | Municipal STP |
|-------------|---------------|

#### Conditions and measures related to external treatment of waste for disposal

|                 |                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------|
| <b>Disposal</b> | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|-----------------|----------------------------------------------------------------------------------------------------------|

|                                                                                               |                                                                               |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <b>Control of worker exposure</b>                                                             |                                                                               |
| <b>Process category(ies)</b>                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                |
| <b>Covers concentrations up to</b>                                                            | 100%                                                                          |
| <b>Physical form of product</b>                                                               | Liquid                                                                        |
| <b>Use frequency</b>                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| <b>Technical conditions and measures to control dispersion from source towards the worker</b> | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8c - Wide dispersive indoor use resulting in inclusion into or onto a matrix**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                              | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|--------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC3 - Use in closed batch process (synthesis or formulation)     | Worker - inhalative, long-term - systemic | 0.01 mg/m <sup>3</sup>   | 0.001                             |
| PROC3 - Use in closed batch process (synthesis or formulation)     | Worker - inhalative, short-term - local   | 0.02 mg/m <sup>3</sup>   | 0.01                              |
| PROC3 - Use in closed batch process (synthesis or formulation)     | Worker - inhalative, long-term - local    | 0.01 mg/m <sup>3</sup>   | 0.01                              |
| PROC9 - Transfer of substance or preparation into small containers | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |

|                                                                                                                 |                                            |                        |      |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------|------|
| (dedicated filling line, including weighing)                                                                    |                                            |                        |      |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, short-term<br>- local | 0.1 mg/m <sup>3</sup>  | 0.05 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) | Worker - inhalative, long-term<br>- local  | 0.05 mg/m <sup>3</sup> | 0.05 |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Professional use  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release  
 ERC11a - Wide dispersive indoor use of long-life articles and materials with low release  
**Process category(ies)** PROC0 - Other Process  
 PROC21 - Low energy manipulation of substances bound in materials and/or articles  
**Product category(ies)** PC2 - Adsorbent(s)  
**Sector(s) of use** SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release  
 - ERC11a - Wide dispersive indoor use of long-life articles and materials with low release

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC0 - Other Process                                                                                                                                                           |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| exposure                                                                               |                                                                                                                                                                                 |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                               |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC10a - Wide dispersive outdoor use of long-life articles and materials with low release**  
**- ERC11a - Wide dispersive indoor use of long-life articles and materials with low release**

#### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                             | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC0 - Other Process                                                             | Worker - inhalative, long-term<br>- systemic | 0.02 mg/m <sup>3</sup>   | 0.002                             |
| PROC0 - Other Process                                                             | Worker - inhalative, short-term<br>- local   | 0.04 mg/m <sup>3</sup>   | 0.02                              |
| PROC0 - Other Process                                                             | Worker - inhalative, long-term<br>- local    | 0.02 mg/m <sup>3</sup>   | 0.02                              |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, short-term<br>- local   | 0.2 mg/m <sup>3</sup>    | 0.1                               |

---

|                                                                                   |                                           |                       |     |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----------------------|-----|
| PROC21 - Low energy manipulation of substances bound in materials and/or articles | Worker - inhalative, long-term<br>- local | 0.1 mg/m <sup>3</sup> | 0.1 |
|-----------------------------------------------------------------------------------|-------------------------------------------|-----------------------|-----|

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Professional  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems  
**Process category(ies)** PROC0 - Other Process  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC0 - Other Products  
**Sector(s) of use** SU20 - Health services SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC0 - Other Process                                                                                                                                                           |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                             | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC0 - Other Process                                             | Worker - inhalative, long-term - systemic | 0.02 mg/m <sup>3</sup>   | 0.002                             |
| PROC0 - Other Process                                             | Worker - inhalative, short-term - local   | 0.04 mg/m <sup>3</sup>   | 0.02                              |
| PROC0 - Other Process                                             | Worker - inhalative, long-term - local    | 0.02 mg/m <sup>3</sup>   | 0.02                              |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term - systemic | 0.05 mg/m <sup>3</sup>   | 0.005                             |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, short-term - local   | 0.1 mg/m <sup>3</sup>    | 0.05                              |
| PROC19 - Hand-mixing with intimate contact and only PPE available | Worker - inhalative, long-term - local    | 0.05 mg/m <sup>3</sup>   | 0.05                              |

### Section 4 - Guidance to check compliance with the exposure scenario



Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
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 Aquarius House  
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**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Plant protection agent  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Process category(ies)** PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC11 - Non industrial spraying  
**Product category(ies)** PC27 - Plant protection products  
**Sector(s) of use** SU1 - Agriculture, forestry, fishery SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Outdoor                                                                                |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Outdoor                                                                                                                                                                         |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC11 - Non industrial spraying                                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Outdoor                                                                                                                                                                                                                                    |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems**  
**- ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                           |                        |
|-------------------------------------------|------------------------|
| Worker - inhalative, long-term - local    | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local   | 2 mg/m <sup>3</sup>    |

Consumer - oral, long-term - systemic

0.1 mg/kg bw/day

Consumer - inhalative, long-term - systemic

4.57 mg/m<sup>3</sup>

| Process category(ies)                                                                                                             | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term - systemic | 0.005 mg/m <sup>3</sup>  | 0                                 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term - local   | 0.01 mg/m <sup>3</sup>   | 0.005                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term - local    | 0.005 mg/m <sup>3</sup>  | 0.005                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term - systemic | 0.005 mg/m <sup>3</sup>  | 0                                 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term - local   | 0.01 mg/m <sup>3</sup>   | 0.005                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term - local    | 0.005 mg/m <sup>3</sup>  | 0.005                             |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term - systemic | 0.035 mg/m <sup>3</sup>  | 0.003                             |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, short-term - local   | 0.07 mg/m <sup>3</sup>   | 0.035                             |
| PROC11 - Non industrial spraying                                                                                                  | Worker - inhalative, long-term - local    | 0.035 mg/m <sup>3</sup>  | 0.035                             |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Plant protection agent  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Process category(ies)** PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
**Product category(ies)** PC27 - Plant protection products  
**Sector(s) of use** SU1 - Agriculture, forestry, fishery SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                              |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure                                               |                                                                                                                                                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                                                                              |
| Covers concentrations up to                                                            | 5%                                                                                                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems**  
**- ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                             | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term - systemic | 0.3 mg/m <sup>3</sup>    | 0.028                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term - local   | 0.6 mg/m <sup>3</sup>    | 0.3                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term - local    | 0.3 mg/m <sup>3</sup>    | 0.3                               |

|                                                                                                                               |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.125 mg/m <sup>3</sup> | 0.012 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.25 mg/m <sup>3</sup>  | 0.125 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.125 mg/m <sup>3</sup> | 0.125 |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                 |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Plant protection agent                                                                                                                          |
| <b>Type</b>                                | Consumer                                                                                                                                        |
| <b>Main user group</b>                     | Consumer uses: Private households (= general public = consumers)                                                                                |
| <b>Environmental release category(ies)</b> | ERC8a - Wide dispersive indoor use of processing aids in open systems<br>ERC8d - Wide dispersive outdoor use of processing aids in open systems |
| <b>Product category(ies)</b>               | PC27 - Plant protection products                                                                                                                |
| <b>Sector(s) of use</b>                    | SU21 - Consumer uses                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|             |               |
|-------------|---------------|
| <b>Type</b> | Municipal STP |
|-------------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|                 |                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------|
| <b>Disposal</b> | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|-----------------|----------------------------------------------------------------------------------------------------------|

#### Control of consumer exposure

|                                    |                                    |
|------------------------------------|------------------------------------|
| <b>Product categories [PC]</b>     | PC27 - Plant protection products   |
| <b>Covers concentrations up to</b> | 1%                                 |
| <b>Physical form of product</b>    | Liquid                             |
| <b>Indoor/Outdoor use</b>          | Indoor                             |
| <b>Operational conditions</b>      | Covers use at ambient temperatures |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Predicted No Effect Concentration**



(PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Product category(ies)                                | Exposure route                              | predicted exposure level | Risk characterisation ratio (RCR) |
|------------------------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|
| PC38 - Welding and soldering products, flux products | Consumer - inhalative, long-term - systemic | 0.0008 mg/m <sup>3</sup> | 0                                 |
| PC38 - Welding and soldering products, flux products | Consumer - oral, long-term - systemic       | 0 mg/kg bw/day           | 0                                 |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

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**REACH registration number** 01-2119485924-24-XXXX  
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 6 Mid Point Business Park  
 Bradford  
 GBR  
  
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### Section 1 - Title

**Title** Formulation & (re)packing of substances and mixtures  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC2 - Formulation of preparations (mixtures)  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC15 - Use as laboratory reagent  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
 PROC28 - Manual maintenance (cleaning and repair) of machinery  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC2 - Formulation of preparations (mixtures)

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 16667000              |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
| Covers concentrations up to | 100%                                                                                                                          |
| Physical form of product    | Solid, low dustiness                                                                                                          |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently).                                                             |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC28 - Manual maintenance (cleaning and repair) of machinery                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

#### **Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### **Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC3 - Use in closed batch process                                           | Worker - inhalative, long-term               | 0.007 mg/m <sup>3</sup>  | 0                                 |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| (synthesis or formulation)                                                                                                          | - systemic                                   |                         |       |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC9 - Transfer of substance or                                                                                                    | Worker - inhalative, long-term               | 0.007 mg/m <sup>3</sup> | 0.007 |

|                                                                                      |                                              |                         |       |
|--------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| preparation into small containers<br>(dedicated filling line, including<br>weighing) | - local                                      |                         |       |
| PROC15 - Use as laboratory reagent                                                   | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC15 - Use as laboratory reagent                                                   | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC15 - Use as laboratory reagent                                                   | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                 | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                 | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC19 - Hand-mixing with intimate<br>contact and only PPE available                 | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC28 - Manual maintenance<br>(cleaning and repair) of machinery                    | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC28 - Manual maintenance<br>(cleaning and repair) of machinery                    | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC28 - Manual maintenance<br>(cleaning and repair) of machinery                    | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Industrial use resulting in manufacture of another substance (use of intermediates)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC15 - Use as laboratory reagent  
 PC19 - Intermediate  
**Product category(ies)** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8  
**Sector(s) of use** - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 1000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                   |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                    |
| Covers concentrations up to                                                            | 100%                                                                                              |
| Physical form of product                                                               | Solid, low dustiness                                                                              |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                 |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)        |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Process category(ies) | PROC8b - Transfer of substance or preparation (charging/discharging) from/to |
|-----------------------|------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | vessels/large containers at dedicated facilities                                                                                                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                         |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                         |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                            |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                         |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                       |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                         |
| Covers concentrations up to                                                            | 100%                                                                                       |
| Physical form of product                                                               | Solid, low dustiness                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee   |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                    | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                 | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                 | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC1 - Use in closed process, no likelihood of exposure                                 | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.07                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure            | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure            | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure            | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                           | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                           | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                           | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>   | 0.033                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity                     | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>    | 0.7                               |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| for exposure arises                                                                                                                 |                                              |                         |       |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0     |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                   | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                   | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC14 - Production of preparations                                                                                                 | Worker - inhalative, long-term               | 0.007 mg/m <sup>3</sup> | 0.007 |

|                                                               |                                              |                         |       |
|---------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| or articles by tableting, compression, extrusion, pelettising | - local                                      |                         |       |
| PROC15 - Use as laboratory reagent                            | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC15 - Use as laboratory reagent                            | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC15 - Use as laboratory reagent                            | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Industrial use resulting in manufacture of another substance (use of intermediates)  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising  
 PROC15 - Use as laboratory reagent  
**Product category(ies)** PC19 - Intermediate  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 3333000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 1000000                |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|



**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| exposure               |                                                                                        |
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to | 100%                                                                                                            |
| Physical form of product    | Solid, low dustiness                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks**

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                             | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                          | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                                                                          | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC1 - Use in closed process, no likelihood of exposure                                                                          | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                     | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                     | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                     | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup>  | 0.007                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>   | 0.033                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>    | 0.7                               |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>   | 0.35                              |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>   | 0.033                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>    | 0.7                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>   | 0.35                              |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC8b - Transfer of substance or                                                                                                 | Worker - inhalative, short-term              | 0.028 mg/m <sup>3</sup>  | 0.014                             |

|                                                                                                                               |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                   | - local                                      |                         |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                             | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Environmental release category(ies)</b> | ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC21 - Low energy manipulation of substances bound in materials and/or articles<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature<br>PROC25 - Other hot work operations with metals<br>PROC28 - Manual maintenance (cleaning and repair) of machinery |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                       |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Process category(ies) | PROC8a - Transfer of substance or preparation (charging/discharging) from/to |
|-----------------------|------------------------------------------------------------------------------|



|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | vessels/large containers at non dedicated facilities                                                                                                                            |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                      |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                 |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                 |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                    |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90% |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                      |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC25 - Other hot work operations with metals                                                                                                       |
| Covers concentrations up to                                                            | 100%                                                                                                                                                 |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                 |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                    |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90% |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC28 - Manual maintenance (cleaning and repair) of machinery                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.007 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.028 mg/m <sup>3</sup>  | 0.014                             |
| PROC2 - Use in closed, continuous                                             | Worker - inhalative, long-term            | 0.007 mg/m <sup>3</sup>  | 0.007                             |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| process with occasional controlled exposure                                                                                         | - local                                      |                         |       |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |

|                                                                                                                    |                                              |                         |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| dedicated facilities                                                                                               |                                              |                         |       |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)    | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC10 - Roller application or brushing                                                                            | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- systemic | 0.007 mg/m <sup>3</sup> | 0     |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, short-term<br>- local   | 0.028 mg/m <sup>3</sup> | 0.014 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- local    | 0.007 mg/m <sup>3</sup> | 0.007 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated                                 | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |

|                                                                                               |                                              |                        |       |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| temperature; industrial setting                                                               |                                              |                        |       |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup> | 0.013 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup> | 0.28  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup> | 0.007 |
| PROC25 - Other hot work operations with metals                                                | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup> | 0.07  |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup> | 0.033 |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup> | 0.07  |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup> | 0.35  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Environmental release category(ies)</b> | ERC5 - Industrial use resulting in inclusion into or onto a matrix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC21 - Low energy manipulation of substances bound in materials and/or articles<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature<br>PROC25 - Other hot work operations with metals |
| <b>Product category(ies)</b>               | PROC28 - Manual maintenance (cleaning and repair) of machinery<br>PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### Section 2 - Operational conditions and risk management measures



## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC5 - Industrial use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                   |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                    |
| Covers concentrations up to                                                            | 100%                                                                                              |
| Physical form of product                                                               | Solid, low dustiness                                                                              |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                 |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)        |
| Conditions and measures related to personal protection, hygiene and                    | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| health evaluation                                                           | See Section 8 for information on appropriate personal protective equipment             |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                       |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                             |                                                                                                                                                      |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                       | PROC10 - Roller application or brushing                                                                                                              |
| Covers concentrations up to                                                 | 100%                                                                                                                                                 |
| Physical form of product                                                    | Solid, low dustiness                                                                                                                                 |
| Use frequency                                                               | Covers daily exposures up to 8 hours (unless stated differently).                                                                                    |
| Technical conditions and measures to control dispersion from source towards | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90% |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

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|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

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|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

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|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                                                                                    |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

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|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                             |                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| Covers concentrations up to | 100%                                                                                          |
| Physical form of product    | Solid, low dustiness                                                                          |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently).                             |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC25 - Other hot work operations with metals                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC28 - Manual maintenance (cleaning and repair) of machinery                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### **Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC5 - Industrial use resulting in inclusion into or onto a matrix**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - systemic | 0.07 mg/m <sup>3</sup>   | 0.007                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term - local   | 0.28 mg/m <sup>3</sup>   | 0.14                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term - local    | 0.07 mg/m <sup>3</sup>   | 0.07                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - systemic | 0.07 mg/m <sup>3</sup>   | 0.007                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term - local   | 0.28 mg/m <sup>3</sup>   | 0.14                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term - local    | 0.07 mg/m <sup>3</sup>   | 0.07                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - systemic | 0.35 mg/m <sup>3</sup>   | 0.033                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term - local   | 1.4 mg/m <sup>3</sup>    | 0.7                               |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term - local    | 0.35 mg/m <sup>3</sup>   | 0.35                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.035 mg/m <sup>3</sup>  | 0.003                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.14 mg/m <sup>3</sup>   | 0.07                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.035 mg/m <sup>3</sup>  | 0.035                             |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term - systemic | 0.035 mg/m <sup>3</sup>  | 0.003                             |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term - local   | 0.14 mg/m <sup>3</sup>   | 0.07                              |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term - local    | 0.035 mg/m <sup>3</sup>  | 0.035                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - systemic | 0.35 mg/m <sup>3</sup>   | 0.033                             |
| PROC8a - Transfer of substance or                                                                                                   | Worker - inhalative, short-term           | 1.4 mg/m <sup>3</sup>    | 0.7                               |

|                                                                                                                                   |                                              |                         |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                   | - local                                      |                         |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                   | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                 | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                 | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                 | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                                      | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                                      | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |



|                                                                                                                    |                                              |                         |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                       | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC25 - Other hot work operations with metals                                                                     | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                                     | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                                     | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                                     | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
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### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Environmental release category(ies)</b> | ERC6b - Industrial use of reactive processing aids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Process category(ies)</b>               | PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC15 - Use as laboratory reagent<br>PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected<br>PROC19 - Hand-mixing with intimate contact and only PPE available<br>PROC21 - Low energy manipulation of substances bound in materials and/or articles<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature<br>PROC25 - Other hot work operations with metals<br>PROC28 - Manual maintenance (cleaning and repair) of machinery |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 1667000               |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000000                |
| Units | t(ons)/year            |

### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

### Environmental factors not influenced by risk management

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                             |
| Covers concentrations up to                                                            | 100%                                                                                       |
| Physical form of product                                                               | Solid, low dustiness                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee   |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                       |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                                                                       |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                      |                                                                                            |
|--------------------------------------|--------------------------------------------------------------------------------------------|
| Process category(ies)                | PROC10 - Roller application or brushing                                                    |
| Covers concentrations up to          | 100%                                                                                       |
| Physical form of product             | Solid, low dustiness                                                                       |
| Use frequency                        | Covers daily exposures up to 8 hours (unless stated differently).                          |
| Technical conditions and measures to | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| control dispersion from source towards the worker                                     | Local exhaust ventilation - efficiency of at least 90%                                                                                                                          |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                                                                                    |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC21 - Low energy manipulation of substances bound in materials and/or articles                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |



|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes activities are at ambient temperature (unless stated differently)                                                                                                       |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC25 - Other hot work operations with metals                                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC28 - Manual maintenance (cleaning and repair) of machinery                                                                                                                  |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| exposure               |                                                                                        |
| Indoor/Outdoor use     | Indoor                                                                                 |
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>   | 0.007                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>   | 0.14                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>   | 0.07                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>   | 0.007                             |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>   | 0.14                              |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>   | 0.07                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>   | 0.033                             |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>    | 0.7                               |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>   | 0.35                              |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup>  | 0.003                             |
| PROC5 - Mixing or blending in batch processes for formulation of                                                                    | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>   | 0.07                              |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| preparations and articles (multi-stage and/or significant contact)                                                                  |                                              |                         |       |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup>  | 0.033 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.4 mg/m <sup>3</sup>   | 0.7   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup>  | 0.35  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                     | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC10 - Roller application or brushing                                                                                             | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC13 - Treatment of articles by dipping and pouring                                                                               | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC13 - Treatment of articles by dipping and pouring                                                                               | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |

|                                                                                                                    |                                              |                         |       |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC13 - Treatment of articles by dipping and pouring                                                              | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising                  | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC15 - Use as laboratory reagent                                                                                 | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                       | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup>  | 0.007 |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                       | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup>  | 0.14  |
| PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected                       | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup>  | 0.07  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- systemic | 0.035 mg/m <sup>3</sup> | 0.003 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup>  | 0.07  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                  | Worker - inhalative, long-term<br>- local    | 0.035 mg/m <sup>3</sup> | 0.035 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC21 - Low energy manipulation of substances bound in materials and/or articles                                  | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, short-term<br>- local   | 0.56 mg/m <sup>3</sup>  | 0.28  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup>  | 0.14  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                      | Worker - inhalative, long-term<br>- systemic | 0.14 mg/m <sup>3</sup>  | 0.013 |
| PROC23 - Open processing and                                                                                       | Worker - inhalative, short-term              | 0.56 mg/m <sup>3</sup>  | 0.28  |

|                                                                                               |                                              |                        |       |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| transfer operations with minerals/metals at elevated temperature                              | - local                                      |                        |       |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature | Worker - inhalative, long-term<br>- local    | 0.14 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                | Worker - inhalative, long-term<br>- systemic | 0.07 mg/m <sup>3</sup> | 0.007 |
| PROC25 - Other hot work operations with metals                                                | Worker - inhalative, short-term<br>- local   | 0.28 mg/m <sup>3</sup> | 0.14  |
| PROC25 - Other hot work operations with metals                                                | Worker - inhalative, long-term<br>- local    | 0.07 mg/m <sup>3</sup> | 0.07  |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                | Worker - inhalative, long-term<br>- systemic | 0.35 mg/m <sup>3</sup> | 0.033 |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                | Worker - inhalative, short-term<br>- local   | 0.14 mg/m <sup>3</sup> | 0.07  |
| PROC28 - Manual maintenance (cleaning and repair) of machinery                                | Worker - inhalative, long-term<br>- local    | 0.35 mg/m <sup>3</sup> | 0.35  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Environmental release category(ies)</b> | ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Process category(ies)</b>               | <p>PROC1 - Use in closed process, no likelihood of exposure</p> <p>PROC2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)</p> <p>PROC7 - Industrial spraying</p> <p>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC15 - Use as laboratory reagent</p> <p>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting</p> <p>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature</p> |
| <b>Product category(ies)</b>               | <p>PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products</p>                                                                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | <p>SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

**Covers concentrations up to** 25%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

### Environmental factors not influenced by risk management

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure |
| Covers concentrations up to                                                            | 25%                                                                           |
| Physical form of product                                                               | Solid, low dustiness                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |



|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|----------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, short-term - local   | 0.024 mg/m <sup>3</sup>  | 0.012                             |
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC2 - Use in closed, continuous process with occasional controlled | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| exposure                                                                                                                            |                                              |                         |       |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.024 mg/m <sup>3</sup> | 0.012 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.12 mg/m <sup>3</sup>  | 0.06  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |

## **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC6b - Industrial use of reactive processing aids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| <b>Product category(ies)</b>               | PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 25%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure            |
| Covers concentrations up to                                                            | 25%                                                                                      |
| Physical form of product                                                               | Solid, low dustiness                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                        |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)            |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee |



|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to | 25%                                                                                                             |
| Physical form of product    | Solid, low dustiness                                                                                            |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently).                                               |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure                                               |                                                                                                                                                                                 |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.024 mg/m <sup>3</sup>  | 0.012                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous                                             | Worker - inhalative, short-term           | 0.024 mg/m <sup>3</sup>  | 0.012                             |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| process with occasional controlled exposure                                                                                         | - local                                      |                         |       |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.12 mg/m <sup>3</sup>  | 0.06  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging)                                                                | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| from/to vessels/large containers at dedicated facilities                                                                      |                                              |                        |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |

## **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environmental release category(ies)</b> | ERC7 - Industrial use of substances in closed systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting<br>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature |
| <b>Product category(ies)</b>               | PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures



## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC7 - Industrial use of substances in closed systems

**Covers concentrations up to** 25%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure            |
| Covers concentrations up to                                                            | 25%                                                                                      |
| Physical form of product                                                               | Solid, low dustiness                                                                     |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                        |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)            |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------|
| Process category(ies)       | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
| Covers concentrations up to | 25%                                                                                                             |
| Physical form of product    | Solid, low dustiness                                                                                            |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently).                                               |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent                                                     | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /limit releases, dispersion and exposure                                               |                                                                                                                                                                                 |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC7 - Industrial use of substances in closed systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.024 mg/m <sup>3</sup>  | 0.012                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous                                             | Worker - inhalative, short-term           | 0.024 mg/m <sup>3</sup>  | 0.012                             |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| process with occasional controlled exposure                                                                                         | - local                                      |                         |       |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.12 mg/m <sup>3</sup>  | 0.06  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging)                                                                | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| from/to vessels/large containers at dedicated facilities                                                                      |                                              |                        |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |

## **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Professional  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems  
**Process category(ies)** PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
 PROC15 - Use as laboratory reagent  
 PROC19 - Hand-mixing with intimate contact and only PPE available  
**Product category(ies)** PC12 - Fertilisers  
**Sector(s) of use** SU1 - Agriculture, forestry, fishery SU22 - Professional uses

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 5.5                   |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 5000                   |
| Units | t(ons)/year            |

#### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities           |
| Covers concentrations up to                                                            | 100%                                                                                                                                    |
| Physical form of product                                                               | Liquid                                                                                                                                  |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                       |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90% |
| Conditions and measures related to                                                     | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee                                                |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| personal protection, hygiene and health evaluation                          | training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                               |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                            |
| Physical form of product                                                               | Liquid                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Operational conditions | Assumes use at not more than 20°C above ambient temperature, unless stated differently |
|------------------------|----------------------------------------------------------------------------------------|

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems - ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                                                                               | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - systemic | 0.2 mg/m <sup>3</sup>    | 0.019                             |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term - local   | 0.8 mg/m <sup>3</sup>    | 0.4                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term - local    | 0.2 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term - local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term - local    | 0.1 mg/m <sup>3</sup>    | 0.1                               |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term - systemic | 0.1 mg/m <sup>3</sup>    | 0.009                             |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, short-term - local   | 0.4 mg/m <sup>3</sup>    | 0.2                               |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                   | - local                                      |                        |       |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.1 mg/m <sup>3</sup>  | 0.009 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.4 mg/m <sup>3</sup>  | 0.2   |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                             | Worker - inhalative, long-term<br>- systemic | 0.21 mg/m <sup>3</sup> | 0.02  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                             | Worker - inhalative, short-term<br>- local   | 0.21 mg/m <sup>3</sup> | 0.105 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                             | Worker - inhalative, long-term<br>- local    | 0.1 mg/m <sup>3</sup>  | 0.1   |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Laboratory activities  
**Type** Worker  
**Main user group** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
**Environmental release category(ies)** ERC8b - Wide dispersive indoor use of reactive substances in open systems  
**Process category(ies)** PROC15 - Use as laboratory reagent  
**Product category(ies)** PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products  
  
**Sector(s) of use** SU22 - Professional uses SU24 - Scientific research and development

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems

**Covers concentrations up to** 25%

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                            |
| Covers concentrations up to                                                            | 25%                                                                           |
| Physical form of product                                                               | Solid, low dustiness                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)              | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC15 - Use as laboratory reagent | Worker - inhalative, long-term - systemic | 0.06 mg/m <sup>3</sup>   | 0.006                             |
| PROC15 - Use as laboratory reagent | Worker - inhalative, short-term - local   | 0.24 mg/m <sup>3</sup>   | 0.12                              |
| PROC15 - Use as laboratory reagent | Worker - inhalative, long-term - local    | 0.06 mg/m <sup>3</sup>   | 0.06                              |

### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                                                                                                                                                                                                                                                                        |
| <b>Process category(ies)</b>               | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                        |
| <b>Sector(s) of use</b>                    | SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU22 - Professional uses                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Process category(ies) | PROC8a - Transfer of substance or preparation (charging/discharging) from/to |
|-----------------------|------------------------------------------------------------------------------|



|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | vessels/large containers at non dedicated facilities                                                                                                                            |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC13 - Treatment of articles by dipping and pouring             |
| Covers concentrations up to | 25%                                                               |
| Physical form of product    | Solid, low dustiness                                              |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently). |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems - ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

|                       |                |                          |                             |
|-----------------------|----------------|--------------------------|-----------------------------|
| Process category(ies) | Exposure route | predicted exposure level | Risk characterisation ratio |
|-----------------------|----------------|--------------------------|-----------------------------|

|                                                                                                                                   |                                              |                         | (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0     |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.024 mg/m <sup>3</sup> | 0.012 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental release category(ies)</b> | ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix                                                                                                                                                                                                                                                                                                                                                            |
| <b>Process category(ies)</b>               | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                        |
| <b>Sector(s) of use</b>                    | SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU22 - Professional uses                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix

**Covers concentrations up to** 100%

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                                                                                                   |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies) | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------|

|                             |     |
|-----------------------------|-----|
| Covers concentrations up to | 25% |
|-----------------------------|-----|

**ES00281 - Phosphoric Acid (231-633-2) - Widespread use by professional workers - Metal surface treatment products ; Non-metal-surface treatment products - Solid, low dustiness - Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

**Revision date** 09-Jul-2026

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                     |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                    |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                       |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80% |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                             |                                                                                                                                                                                                                                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                | Exposure route                               | predicted exposure level | Risk characterisation ratio (RCR) |
|----------------------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------------|
| PROC8a - Transfer of substance or preparation (charging/discharging) | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>   | 0.006                             |

|                                                                                                                                   |                                              |                         |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| from/to vessels/large containers at non dedicated facilities                                                                      |                                              |                         |       |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0     |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.024 mg/m <sup>3</sup> | 0.012 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

**Chemical name** ORTHOPHOSPHORIC ACID  
**REACH registration number** 01-2119485924-24-XXXX  
**CAS No** 7664-38-2  
**EC No (EU Index No)** 231-633-2  
**Supplier** Univar Solutions UK Ltd  
 Aquarius House  
 6 Mid Point Business Park  
 Bradford  
 GBR  
  
**Non-Emergency Telephone Number** +44 1274 267300 / +44 1274 267306  
  
**E-mail address** SDS.EMEA@univarsolutions.com

### Section 1 - Title

**Title** Catalyst  
**Type** Worker  
**Main user group** Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Environmental release category(ies)** ERC6b - Industrial use of reactive processing aids  
**Process category(ies)** PROC1 - Use in closed process, no likelihood of exposure  
 PROC2 - Use in closed, continuous process with occasional controlled exposure  
 PROC3 - Use in closed batch process (synthesis or formulation)  
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises  
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities  
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities  
 PROC15 - Use as laboratory reagent  
**Product category(ies)** PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products  
**Sector(s) of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6b - Industrial use of reactive processing aids

**Covers concentrations up to** 100%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |



|       |             |
|-------|-------------|
| Units | t(ons)/year |
|-------|-------------|

**Other operational conditions of use affecting environmental exposure**

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Environmental factors not influenced by risk management**

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                             |                                                                               |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                       | PROC3 - Use in closed batch process (synthesis or formulation)                |
| Covers concentrations up to                                                 | 25%                                                                           |
| Physical form of product                                                    | Solid, low dustiness                                                          |
| Use frequency                                                               | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| the worker                                                                            |                                                                                                                                                                                 |
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC6b - Industrial use of reactive processing aids

#### **Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### **Derived No Effect Level (DNEL):**

|                                                    |                        |
|----------------------------------------------------|------------------------|
| <b>Worker - inhalative, long-term - local</b>      | 1 mg/m <sup>3</sup>    |
| <b>Worker - inhalative, long-term - systemic</b>   | 10.7 mg/m <sup>3</sup> |
| <b>Worker - inhalative, short-term - local</b>     | 2 mg/m <sup>3</sup>    |
| <b>Consumer - oral, long-term - systemic</b>       | 0.1 mg/kg bw/day       |
| <b>Consumer - inhalative, long-term - systemic</b> | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                         | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, short-term - local   | 0.024 mg/m <sup>3</sup>  | 0.012                             |
| PROC1 - Use in closed process, no likelihood of exposure                      | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, short-term - local   | 0.024 mg/m <sup>3</sup>  | 0.012                             |
| PROC2 - Use in closed, continuous process with occasional controlled exposure | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |

|                                                                                                                                   |                                              |                        |       |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| exposure                                                                                                                          |                                              |                        |       |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                    | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>  | 0.028 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                          | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>  | 0.3   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>  | 0.028 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>  | 0.6   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>  | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC15 - Use as laboratory reagent                                                                                                | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC15 - Use as laboratory reagent                                                                                                | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC15 - Use as laboratory reagent                                                                                                | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Processing aid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Environmental release category(ies)</b> | ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Process category(ies)</b>               | <p>PROC1 - Use in closed process, no likelihood of exposure</p> <p>PROC2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)</p> <p>PROC7 - Industrial spraying</p> <p>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC15 - Use as laboratory reagent</p> <p>PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting</p> <p>PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature</p> |
| <b>Product category(ies)</b>               | <p>PC1 - Adhesives, sealants PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, putties, plasters, modelling clay PC13 - Fuels PC19 - Intermediate PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products PC25 - Metal working fluids PC26 - Paper and board dye, finishing and impregnation products; including bleaches and other processing aids PC32 - Polymer preparations and compounds PC33 - Semiconductor(s) PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products</p>                                                                                                                                                                                                                                                                                                                                                               |
| <b>Sector(s) of use</b>                    | <p>SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU11 - Manufacture of rubber products SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU19 - Building and construction work</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

## Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

**Covers concentrations up to** 25%  
**Amounts used**

|       |                       |
|-------|-----------------------|
| Type  | Daily amount per site |
| Value | 666700                |
| Units | kg/d                  |

|       |                        |
|-------|------------------------|
| Type  | Annual amount per site |
| Value | 2000000                |
| Units | t(ons)/year            |

### Other operational conditions of use affecting environmental exposure

|                                                                            |           |
|----------------------------------------------------------------------------|-----------|
| Release fraction to wastewater from process (initial release prior to RMM) | 2000 m3/d |
|----------------------------------------------------------------------------|-----------|

### Conditions and measures related to municipal sewage treatment plant

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

### Environmental factors not influenced by risk management

|                                            |            |
|--------------------------------------------|------------|
| Receiving water dilution (fresh or marine) | 18000 m3/d |
|--------------------------------------------|------------|

### Conditions and measures related to external treatment of waste for disposal

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

### Control of worker exposure

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure                                                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                               |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC2 - Use in closed, continuous process with occasional controlled exposure |
| Covers concentrations up to                                                            | 25%                                                                           |
| Physical form of product                                                               | Solid, low dustiness                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).             |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour) |

|                                                                                       |                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions and measures related to personal protection, hygiene and health evaluation | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure           | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                    | Indoor                                                                                                                                                                          |
| Operational conditions                                                                | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                  |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                        |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)                                             |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC7 - Industrial spraying                                                                                                                                                     |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                               |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |
| Process category(ies)                                                                  | PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)                                                                 |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |



|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC13 - Treatment of articles by dipping and pouring                                                                                                                           |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)                                                                                                   |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting                                                              |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |

|                                                                             |                                                                                        |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Organisational measures to prevent /limit releases, dispersion and exposure | Assumes a good basic standard of occupational hygiene is implemented                   |
| Indoor/Outdoor use                                                          | Indoor                                                                                 |
| Operational conditions                                                      | Assumes use at not more than 20°C above ambient temperature, unless stated differently |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 90%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

| Process category(ies)                                                | Exposure route                            | predicted exposure level | Risk characterisation ratio (RCR) |
|----------------------------------------------------------------------|-------------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, short-term - local   | 0.024 mg/m <sup>3</sup>  | 0.012                             |
| PROC1 - Use in closed process, no likelihood of exposure             | Worker - inhalative, long-term - local    | 0.006 mg/m <sup>3</sup>  | 0.006                             |
| PROC2 - Use in closed, continuous process with occasional controlled | Worker - inhalative, long-term - systemic | 0.006 mg/m <sup>3</sup>  | 0                                 |

|                                                                                                                                     |                                              |                         |       |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| exposure                                                                                                                            |                                              |                         |       |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, short-term<br>- local   | 0.024 mg/m <sup>3</sup> | 0.012 |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                       | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                      | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                            | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- systemic | 0.03 mg/m <sup>3</sup>  | 0.003 |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, short-term<br>- local   | 0.12 mg/m <sup>3</sup>  | 0.06  |
| PROC7 - Industrial spraying                                                                                                         | Worker - inhalative, long-term<br>- local    | 0.03 mg/m <sup>3</sup>  | 0.03  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- systemic | 0.3 mg/m <sup>3</sup>   | 0.028 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, short-term<br>- local   | 1.2 mg/m <sup>3</sup>   | 0.6   |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities   | Worker - inhalative, long-term<br>- local    | 0.3 mg/m <sup>3</sup>   | 0.3   |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities       | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |

|                                                                                                                               |                                              |                        |       |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-------|
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- systemic | 0.01 mg/m <sup>3</sup> | 0.001 |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, short-term<br>- local   | 0.02 mg/m <sup>3</sup> | 0.01  |
| PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)               | Worker - inhalative, long-term<br>- local    | 0.01 mg/m <sup>3</sup> | 0.01  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                         | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC15 - Use as laboratory reagent                                                                                            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting            | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup> | 0.006 |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup> | 0.12  |
| PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature                                 | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup> | 0.06  |

## **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | ORTHOPHOSPHORIC ACID                                                                      |
| <b>REACH registration number</b>      | 01-2119485924-24-XXXX                                                                     |
| <b>CAS No</b>                         | 7664-38-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-633-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Metal surface treatment<br>Non-metal-surface treatment products                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Main user group</b>                     | Professional uses: Public domain (administration, education, entertainment, services, craftsmen)                                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental release category(ies)</b> | ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems                                                                                                                                                                                                                                                                                                |
| <b>Process category(ies)</b>               | PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC7 - Base metals and alloys PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                        |
| <b>Sector(s) of use</b>                    | SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU22 - Professional uses                                                                                                                                                            |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8a - Wide dispersive indoor use of processing aids in open systems  
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

**Covers concentrations up to** 100%  
**Conditions and measures related to municipal sewage treatment plant**

|      |               |
|------|---------------|
| Type | Municipal STP |
|------|---------------|

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Disposal | External treatment and disposal of waste should comply with applicable local and/or national regulations |
|----------|----------------------------------------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Process category(ies) | PROC8a - Transfer of substance or preparation (charging/discharging) from/to |
|-----------------------|------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                        | vessels/large containers at non dedicated facilities                                                                                                                            |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                   |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                                                                                        |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC10 - Roller application or brushing                                                                                                                                         |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                             |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                            |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                         |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                            |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                          |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                          |

|                             |                                                                   |
|-----------------------------|-------------------------------------------------------------------|
| Process category(ies)       | PROC13 - Treatment of articles by dipping and pouring             |
| Covers concentrations up to | 25%                                                               |
| Physical form of product    | Solid, low dustiness                                              |
| Use frequency               | Covers daily exposures up to 8 hours (unless stated differently). |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

|                                                                                        |                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC19 - Hand-mixing with intimate contact and only PPE available                                                                                                                                                                          |
| Covers concentrations up to                                                            | 25%                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Solid, low dustiness                                                                                                                                                                                                                       |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently).                                                                                                                                                                          |
| Technical conditions and measures to control dispersion from source towards the worker | Provide a basic standard of general ventilation (1 to 3 air changes per hour)<br>Local exhaust ventilation - efficiency of at least 80%                                                                                                    |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training<br>Wear a respirator providing a minimum efficiency of 90%<br>See Section 8 for information on appropriate personal protective equipment |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Assumes a good basic standard of occupational hygiene is implemented                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Indoor                                                                                                                                                                                                                                     |
| Operational conditions                                                                 | Assumes use at not more than 20°C above ambient temperature, unless stated differently                                                                                                                                                     |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems - ERC8d - Wide dispersive outdoor use of processing aids in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                        |
|---------------------------------------------|------------------------|
| Worker - inhalative, long-term - local      | 1 mg/m <sup>3</sup>    |
| Worker - inhalative, long-term - systemic   | 10.7 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2 mg/m <sup>3</sup>    |
| Consumer - oral, long-term - systemic       | 0.1 mg/kg bw/day       |
| Consumer - inhalative, long-term - systemic | 4.57 mg/m <sup>3</sup> |

|                       |                |                          |                             |
|-----------------------|----------------|--------------------------|-----------------------------|
| Process category(ies) | Exposure route | predicted exposure level | Risk characterisation ratio |
|-----------------------|----------------|--------------------------|-----------------------------|



|                                                                                                                                   |                                              |                         | (RCR) |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------|-------|
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities     | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC10 - Roller application or brushing                                                                                           | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- systemic | 0.06 mg/m <sup>3</sup>  | 0.006 |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, short-term<br>- local   | 0.24 mg/m <sup>3</sup>  | 0.12  |
| PROC13 - Treatment of articles by dipping and pouring                                                                             | Worker - inhalative, long-term<br>- local    | 0.06 mg/m <sup>3</sup>  | 0.06  |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- systemic | 0.006 mg/m <sup>3</sup> | 0     |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, short-term<br>- local   | 0.024 mg/m <sup>3</sup> | 0.012 |
| PROC19 - Hand-mixing with intimate contact and only PPE available                                                                 | Worker - inhalative, long-term<br>- local    | 0.006 mg/m <sup>3</sup> | 0.006 |

#### **Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.