



SAFETY DATA SHEET AMMONIUM CHLORIDE

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

1.1. Product identifier

Product name	AMMONIUM CHLORIDE
Product number	261
Synonyms; trade names	AMMONIUM CHLORATUM, AMMONIUM CHLORIDE RWS FOOD GRADE, AMMONIUM CHLORIDE MIN 99.5%, AMMONIUM CHLORIDE TECHNICAL GRADE, NON FOOD GRADE, AMM CHLORIDE NO AC, AMM CHLORIDE U, AMM CHLORIDE FINE WHITE RWN, AMMONIUM CHLORIDE S FG/PH, AMMONIUM CHLORIDE 99/100%, AMMONIUM CHLORIDE AC (RWN) TECH, AMM CHLORIDE RWN BSF, AMMONIUM CHLORIDE RWT
REACH registration number	01-2119487950-27-XXXX
REACH registration notes	01-2119489385-24-XXXX
CAS number	12125-02-9
EU index number	017-014-00-8
EC number	235-186-4

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

Identified uses	Food / Feed additive Chemical Intermediate
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	261

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Acute Tox. 4 - H302 Eye Irrit. 2 - H319
Environmental hazards	Not Classified

2.2. Label elements

AMMONIUM CHLORIDE

EC number 235-186-4

Hazard pictograms



Signal word Warning

Hazard statements
H302 Harmful if swallowed.
H319 Causes serious eye irritation.

Precautionary statements
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name AMMONIUM CHLORIDE
REACH registration number 01-2119487950-27-XXXX
REACH registration notes 01-2119489385-24-XXXX
EU index number 017-014-00-8
CAS number 12125-02-9
EC number 235-186-4
Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Give plenty of water to drink. Get medical attention.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention.

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

General information Overexposure may cause the following adverse effects: Nausea, vomiting. Headache.

Ingestion Harmful if swallowed.

Eye contact Causes serious eye irritation.

AMMONIUM CHLORIDE

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products When heated, vapours/gases hazardous to health may be formed. Ammonia. Hydrogen chloride (HCl).

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of dust and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Avoid discharge into water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Avoid generation and spreading of dust. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Avoid the spillage or runoff entering drains, sewers or watercourses.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Provide adequate ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a well-ventilated place. Avoid contact with the following materials: Alkalis. Oxidising agents. Nitrites Sodium nitrate Protect from moisture.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

AMMONIUM CHLORIDE

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³ fume

Short-term exposure limit (15-minute): WEL 20 mg/m³ fume

WEL = Workplace Exposure Limit

DNEL

Industry - Inhalation; Long term systemic effects: 43.97 mg/m³

Industry - Dermal; Long term systemic effects: 128.9 mg/kg/day

Consumer - Inhalation; Long term systemic effects: 9.4 mg/m³

Consumer - Dermal; Long term systemic effects: 55.2 mg/kg/day

Consumer - Oral; Long term systemic effects: 55.2 mg/m³

PNEC

- Fresh water; 0.25 mg/l

- marine water; 0.025 mg/l

- Sediment (Freshwater); 0.9 mg/kg

- Soil; 50.7 mg/kg

- STP; 13.1 mg/l

- Sediment (Marinewater); 0.09 mg/kg

- Intermittent release; 0.43 mg/l

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Observe occupational exposure limits and minimize the risk of inhalation of dust. Provide eyewash station and safety shower.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Wear chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The selected gloves should have a breakthrough time of at least 8 hours. Chloroprene rubber. Protective gloves should have a minimum thickness of 0.5 mm. Butyl rubber. Viton rubber (fluoro rubber). Polyvinyl chloride (PVC). Protective gloves should have a minimum thickness of 0.7 mm. Nitrile rubber. Protective gloves should have a minimum thickness of 0.4 mm. To protect hands from chemicals, gloves should comply with European Standard EN374.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Take off contaminated clothing and wash it before reuse.

Respiratory protection

Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. Particulate filter, type P1. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Crystalline powder.
Colour	White.
Odour	Almost odourless.
Odour threshold	No information available.

AMMONIUM CHLORIDE

pH	pH (diluted solution): 4.7 @ 0.2%
Melting point	338°C
Initial boiling point and range	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	66 mbar @ 250°C
Vapour density	No information available.
Relative density	1.53 @ 25°C
Bulk density	600-900 kg/m ³
Solubility(ies)	372 g/l water @ 20°C
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	Not determined.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	No information available.
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Stable at normal ambient temperatures and when used as recommended.
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10.2. Chemical stability

AMMONIUM CHLORIDE

Stability Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions The following materials may react violently with the product: Oxidising agents. The following materials may react with the product: Inorganic nitrites. Organic nitrites.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time. Water, moisture.

10.5. Incompatible materials

Materials to avoid Organic nitrites. Inorganic nitrites. Inorganic nitrates. Strong oxidising agents. Strong alkalis.

10.6. Hazardous decomposition products

Hazardous decomposition products When heated, vapours/gases hazardous to health may be formed. Ammonia or amines. Hydrogen chloride (HCl).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 1,410.0

Species Rat

ATE oral (mg/kg) 500.0

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ >2000 mg/kg, Dermal, Rat

Skin corrosion/irritation

Animal data Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Irritating. Rabbit

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation Not sensitising. Guinea pig maximization test (GPMT)

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

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

Reproductive toxicity

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

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

AMMONIUM CHLORIDE

Aspiration hazard	No information available.
Inhalation	Dust in high concentrations may irritate the respiratory system.
Ingestion	Harmful if swallowed. The product irritates mucous membranes and may cause abdominal discomfort if swallowed.
Skin contact	Prolonged skin contact may cause temporary irritation.
Eye contact	Causes serious eye irritation.

SECTION 12: Ecological information

Ecotoxicity	The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.
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12.1. Toxicity

Toxicity	Not considered toxic to fish.
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Acute aquatic toxicity

Acute toxicity - fish	LC ₅₀ , 96 hours: 42.91 mg/l, Oncorhynchus mykiss (Rainbow trout)
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Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 136.6 mg/l, Daphnia magna
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Acute toxicity - aquatic plants	EC ₅₀ , 5 days: 1300 mg/l, Algae This information is based on test data from similar products
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Acute toxicity - microorganisms	EC ₂₀ , 0.5 hour: 850 mg/l, Activated sludge OECD 209
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Chronic aquatic toxicity

Chronic toxicity - fish early life stage	EC ₁₀ , 30 days: 4.28 mg/l, Lepomis macrochirus (Bluegill)
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Chronic toxicity - aquatic invertebrates	EC ₁₀ , 70 days: 2.52 mg/l, Freshwater invertebrates
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12.2. Persistence and degradability

Persistence and degradability	The product contains only inorganic substances which are not biodegradable.
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12.3. Bioaccumulative potential

Bioaccumulative potential	The product does not contain any substances expected to be bioaccumulating.
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Partition coefficient	No information available.
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12.4. Mobility in soil

Mobility	The product is soluble in water.
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12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	This substance is not classified as PBT or vPvB according to current EU criteria.
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12.6. Other adverse effects

Other adverse effects	Not determined.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

AMMONIUM CHLORIDE

General information	Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).
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14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78

and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015.
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15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

SECTION 16: Other information

AMMONIUM CHLORIDE

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

30/01/2020

Version number

2.004

Supersedes date

16/10/2018

SDS number

261

SDS status

Approved.

AMMONIUM CHLORIDE

Hazard statements in full	H302 Harmful if swallowed. H319 Causes serious eye irritation.
Signature	Jitendra Panchal



Exposure scenario

Manufacture of substance, Distribution of substance

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Manufacture of substance, Distribution of substance
Process scope	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC1 Manufacture of the substance
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Manufacture of substance, Distribution of substance

Product characteristics

Physical state	Solid, medium dustiness
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of both hands. Covers skin contact area up to 480 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Use suitable eye protection.
Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure	PROC2, Worker - inhalation, long-term - systemic: Exposure 0.5 mg/m³, DNEL 43.97 mg/m³, RCR 0.01 Worker - dermal, long-term - systemic: Exposure 1.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.01 PROC9, Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Formulation & (re)packing of substances and mixtures, Industrial applications

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation & (re)packing of substances and mixtures, Industrial applications
Main sector	SU3 Industrial uses SU10 Formulation [mixing] of preparations and/or re-packaging SU16 Manufacture of computer, electronic and optical products, electrical equipment

Environment

Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC7 Use of functional fluid at industrial site ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
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Worker

Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Formulation & (re)packing of substances and mixtures, Industrial applications

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category PROC4 Chemical production where opportunity for exposure arises
 PROC5 Mixing or blending in batch processes
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC15 Use as laboratory reagent.

Product characteristics

Physical state Solid, medium dustiness
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Risk management measures

Use suitable eye protection.
 Risk Management Measures are based on qualitative risk characterisation.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category PROC19 Manual activities involving hand contact

Product characteristics

Physical state Solid, medium dustiness
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Both hands and main part of the arms. Covers skin contact area up to 1980 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation (Health 1)

Assessment method ECETOC TRA v2.0 Worker; modified version

Formulation & (re)packing of substances and mixtures, Industrial applications

Exposure

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11

Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05

PROC5 Mixing or blending in batch processes

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11

Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11

Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05

PROC15 Use as laboratory reagent.

Worker - inhalation, long-term - systemic: Exposure 0.05 mg/m³, DNEL 43.97 mg/m³, RCR 0.01

Worker - dermal, long-term - systemic: Exposure 0.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.003

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>

3. Exposure estimation (Health 2)

Process category

PROC19 Manual activities involving hand contact

Assessment method

ECETOC TRA v2.0 Worker; modified version

Exposure

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11

Worker - dermal, long-term - systemic: Exposure 28.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.22

4. Guidance to check compliance with the exposure scenario (Health 2)

For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Formulation & (re)packing of substances and mixtures, Professional applications

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation & (re)packing of substances and mixtures, Professional applications
Main sector	SU22 Professional uses SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC7 Use of functional fluid at industrial site ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact PROC26 Handling of solid inorganic substances at ambient temperature
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Formulation & (re)packing of substances and mixtures, Professional applications

Control of workers exposure

Process category	PROC4 Chemical production where opportunity for exposure arises
	PROC5 Mixing or blending in batch processes
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
	PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
	PROC13 Treatment of articles by dipping and pouring.
	PROC15 Use as laboratory reagent.
	PROC26 Handling of solid inorganic substances at ambient temperature
	Covered by
	PROC5 Mixing or blending in batch processes
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
	PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Product characteristics

Physical state	Solid, medium dustiness
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of both hands. Covers skin contact area up to 480 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Use suitable eye protection.
Risk Management Measures are based on qualitative risk characterisation.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category	PROC19 Manual activities involving hand contact
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Product characteristics

Physical state	Solid, medium dustiness
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Both hands and main part of the arms. Covers skin contact area up to 1980 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Formulation & (re)packing of substances and mixtures, Professional applications

Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure	PROC4 Chemical production where opportunity for exposure arises Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05 PROC5 Mixing or blending in batch processes Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05 PROC15 Use as laboratory reagent. Worker - inhalation, long-term - systemic: Exposure 0.05 mg/m³, DNEL 43.97 mg/m³, RCR 0.01 Worker - dermal, long-term - systemic: Exposure 0.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.003 PROC13 Treatment of articles by dipping and pouring. Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>

3. Exposure estimation (Health 2)

Process category	PROC19 Manual activities involving hand contact
Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure	Worker - inhalation, long-term - systemic: Exposure 5 mg/m ³ , DNEL 43.97 mg/m ³ , RCR 0.11 Worker - dermal, long-term - systemic: Exposure 28.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.22

4. Guidance to check compliance with the exposure scenario (Health 2)

For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as Cross-linking agent, Use in/as Composite Material based on wood, mineral and natural fibres, Industrial applications

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as Cross-linking agent, Use in/as Composite Material based on wood, mineral and natural fibres, Industrial applications
Main sector	SU3 Industrial uses SU6a Manufacture of wood and wood products

Environment

Environmental release category	ERC2 Formulation into mixture ERC3 Formulation into solid matrix ERC5 Use at industrial site leading to inclusion into/onto article ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Process category	PROC6 Calendering operations. PROC14 Tableting, compression, extrusion, pelletisation, granulation
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category	PROC6 Calendering operations. PROC14 Tableting, compression, extrusion, pelletisation, granulation
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Product characteristics

Usa as Cross-linking agent, Use in/as Composite Material based on wood, mineral and natural fibres, Industrial applications

Physical state	Solid, medium dustiness
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Use suitable eye protection.
Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure	PROC6, Worker - inhalation, long-term - systemic: Exposure 5 mg/m ³ , DNEL 43.97 mg/m ³ , RCR 0.11 Worker - dermal, long-term - systemic: Exposure 27.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.21 PROC14, Worker - inhalation, long-term - systemic: Exposure 1 mg/m ³ , DNEL 43.97 mg/m ³ , RCR 0.02 Worker - dermal, long-term - systemic: Exposure 3.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.03

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (indoor use)

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (indoor use)
Main sector	SU3 Industrial uses SU5 Manufacture of textiles, leather, fur SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU24 Scientific research and development

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6a Use of intermediate ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (indoor use)

Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature PROC23 Open processing and transfer operations at substantially elevated temperature PROC25 Other hot work operations with metals
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring.
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Product characteristics

Physical state	Solid, medium dustiness
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	Palm of both hands. Covers skin contact area up to 480 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Use suitable eye protection.
 Risk Management Measures are based on qualitative risk characterisation.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category	PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature PROC23 Open processing and transfer operations at substantially elevated temperature PROC25 Other hot work operations with metals
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Product characteristics

Physical state	Solid, medium dustiness
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Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (indoor use)

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Both hands and main part of the arms. Covers skin contact area up to 1980 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation (Health 1)

Assessment method ECETOC TRA v2.0 Worker; modified version

Exposure

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11
Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05

PROC5 Mixing or blending in batch processes

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11
Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

PROC6 Calendering operations.

PROC10 Roller application or brushing

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11
Worker - dermal, long-term - systemic: Exposure 27.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.21

PROC13 Treatment of articles by dipping and pouring.

Worker - inhalation, long-term - systemic: Exposure 1 mg/m³, DNEL 43.97 mg/m³, RCR 0.02
Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>

3. Exposure estimation (Health 2)

Process category PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature
PROC23 Open processing and transfer operations at substantially elevated temperature
PROC25 Other hot work operations with metals

Assessment method ECETOC TRA v2.0 Worker; modified version

Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (indoor use)

Exposure

PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature

Worker - inhalation, long-term - systemic: Exposure 3 mg/m³, DNEL 43.97 mg/m³, RCR 0.07

Worker - dermal, long-term - systemic: Exposure 2.8 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.02

PROC23 Open processing and transfer operations at substantially elevated temperature

Worker - inhalation, long-term - systemic: Exposure 3 mg/m³, DNEL 43.97 mg/m³, RCR 0.07

Worker - dermal, long-term - systemic: Exposure 1.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.01

PROC25 Other hot work operations with metals

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11

Worker - dermal, long-term - systemic: Exposure 0.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.002

4. Guidance to check compliance with the exposure scenario (Health 2)

For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as a Process chemical, Use in Metallurgy, Use in leather tanning, finishing, impregnation, Use in Metal surface treatment, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (outdoor use)

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a Process chemical, Use in Metallurgy, Use in leather tanning, finishing, impregnation, Use in Metal surface treatment, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (outdoor use)
Main sector	SU3 Industrial uses SU5 Manufacture of textiles, leather, fur SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU22 Professional uses SU24 Scientific research and development

Environment

Environmental release category	ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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Worker

Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature PROC23 Open processing and transfer operations at substantially elevated temperature PROC25 Other hot work operations with metals
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Use as a Process chemical, Use in Metallurgy, Use in leather tanning, finishing, impregnation, Use in Metal surface treatment, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (outdoor use)

2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC6 Calendering operations.
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.

Product characteristics

Physical state Solid, medium dustiness
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Outdoor use.

Risk management measures

Use suitable eye protection.
Risk Management Measures are based on qualitative risk characterisation.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature
PROC23 Open processing and transfer operations at substantially elevated temperature
PROC25 Other hot work operations with metals

Product characteristics

Physical state Solid, medium dustiness
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Both hands and main part of the arms. Covers skin contact area up to 1980 cm².

Other given operational conditions affecting workers exposure

Use as a Process chemical, Use in Metallurgy, Use in leather tanning, finishing, impregnation, Use in Metal surface treatment, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (outdoor use)

Setting Covers outdoor use.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation (Health 1)

Assessment method ECETOC TRA v2.0 Worker; modified version

Exposure

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - systemic: Exposure 3.5 mg/m³, DNEL 43.97 mg/m³, RCR 0.08

Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05

PROC5 Mixing or blending in batch processes

Worker - inhalation, long-term - systemic: Exposure 3.5 mg/m³, DNEL 43.97 mg/m³, RCR 0.08

Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

PROC6 Calendering operations.

PROC10 Roller application or brushing

Worker - inhalation, long-term - systemic: Exposure 3.5 mg/m³, DNEL 43.97 mg/m³, RCR 0.08

Worker - dermal, long-term - systemic: Exposure 27.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.21

PROC13 Treatment of articles by dipping and pouring.

Worker - inhalation, long-term - systemic: Exposure 0.7 mg/m³, DNEL 43.97 mg/m³, RCR 0.02

Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>

3. Exposure estimation (Health 2)

Process category

PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature

PROC23 Open processing and transfer operations at substantially elevated temperature

PROC25 Other hot work operations with metals

Assessment method

ECETOC TRA v2.0 Worker; modified version

Use as a Process chemical, Use in Metallurgy, Use in leather tanning, finishing, impregnation, Use in Metal surface treatment, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Industrial applications, (outdoor use)

Exposure

PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature

Worker - inhalation, long-term - systemic: Exposure 2.1 mg/m³, DNEL 43.97 mg/m³, RCR 0.05

Worker - dermal, long-term - systemic: Exposure 2.8 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.02

PROC23 Open processing and transfer operations at substantially elevated temperature

Worker - inhalation, long-term - systemic: Exposure 2.1 mg/m³, DNEL 43.97 mg/m³, RCR 0.05

Worker - dermal, long-term - systemic: Exposure 1.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.01

PROC25 Other hot work operations with metals

Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11

Worker - dermal, long-term - systemic: Exposure 0.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.002

4. Guidance to check compliance with the exposure scenario (Health 2)

For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Professional applications, (indoor use)

Identification

Product name	AMMONIUM CHLORIDE
REACH registration number	01-2119487950-27-XXXX
CAS number	12125-02-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Professional applications, (indoor use)
Main sector	SU5 Manufacture of textiles, leather, fur SU10 Formulation [mixing] of preparations and/or re-packaging SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU22 Professional uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC23 Open processing and transfer operations at substantially elevated temperature PROC25 Other hot work operations with metals
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Professional applications, (indoor use)

Not regarded as dangerous for the environment. As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC6 Calendering operations.
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.

Product characteristics

Physical state Solid, medium dustiness
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Risk management measures

Use suitable eye protection.
Risk Management Measures are based on qualitative risk characterisation.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category PROC23 Open processing and transfer operations at substantially elevated temperature
PROC25 Other hot work operations with metals

Product characteristics

Physical state Solid, medium dustiness
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Both hands and main part of the arms. Covers skin contact area up to 1980 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Use as a Process chemical, Use in Metallurgy, Use in Metal surface treatment, Use in leather tanning, finishing, impregnation, Use for Electroplating, Use in Textile finishing, Use in Biotechnology, Professional applications, (indoor use)

3. Exposure estimation (Health 1)

Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure	PROC4 Chemical production where opportunity for exposure arises Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 6.9 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.05 PROC5 Mixing or blending in batch processes Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11 PROC6 Calendering operations. PROC10 Roller application or brushing Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 27.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.21 PROC13 Treatment of articles by dipping and pouring. Worker - inhalation, long-term - systemic: Exposure 1 mg/m³, DNEL 43.97 mg/m³, RCR 0.02 Worker - dermal, long-term - systemic: Exposure 13.7 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.11

4. Guidance to check compliance with the exposure scenario (Health 1)

For scaling see <http://www.ecetoc.org/tra>

3. Exposure estimation (Health 2)

Process category	PROC23 Open processing and transfer operations at substantially elevated temperature PROC25 Other hot work operations with metals
Assessment method	ECETOC TRA v2.0 Worker; modified version
Exposure	PROC23 Open processing and transfer operations at substantially elevated temperature Worker - inhalation, long-term - systemic: Exposure 5 mg/m³, DNEL 43.97 mg/m³, RCR 0.11 Worker - dermal, long-term - systemic: Exposure 1.4 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.01 PROC25 Other hot work operations with metals Worker - inhalation, long-term - systemic: Exposure 10 mg/m³, DNEL 43.97 mg/m³, RCR 0.23 Worker - dermal, long-term - systemic: Exposure 0.3 mg/kg/day, DNEL 128.9 mg/kg, RCR 0.002

4. Guidance to check compliance with the exposure scenario (Health 2)

For scaling see <http://www.ecetoc.org/tra>