

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

Supersedes date 05-Feb-2020

Revision date 27-Oct-2025

Revision Number 4

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

1.1. Product identifier

Product Code(s)	00460
Safety data sheet number	00460
Product Name	PROPAN-1-OL
Index No	603-003-00-0
EC Number	200-746-9
CAS No	71-23-8
Synonyms	N-PROPANOL, PROPYL ALCOHOL, NORMAL PROPANOL, PROPANOL, 1-PROPANOL, YR 203 DIL. RETARDADOR NP, N-PROPANOL BQ
Pure substance/mixture	Substance
Contains PROPAN-1-OL	
Molecular weight	60.1

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

Recommended use	Industrial use Cleaning agent Coatings Lubricant Metal working fluids / rolling oils, Laboratory chemicals For further information, see attached Exposure Scenario
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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
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)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Flammable liquids	Category 2 - (H225)
Serious eye damage/eye irritation	Category 1 - (H318)
Specific target organ toxicity — single exposure	Category 3 - (H336)
Category 3 Narcotic effects	

2.2. Label elements

Contains PROPAN-1-OL



Signal word
Danger

Hazard statements

H318 - Causes serious eye damage
H336 - May cause drowsiness or dizziness
H225 - Highly flammable liquid and vapour

Precautionary statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
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
P370 + P378 - In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

2.3. Other hazards

Vapours can form explosive mixtures with air. Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.

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)
PROPAN-1-OL 71-23-8	>= 99.5 %	200-746-9 (603-003-00-0)	-	Flam. Liq. 2 (H225) Eye Dam. 1 (H318) STOT SE 3 (H336)	-	-	-

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

General advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur. IF exposed or concerned: Get medical advice/attention.
Eye contact	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. Get immediate medical attention. Remove contact lenses, if present and easy to do. Continue rinsing.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor. Drink plenty of water.
Self-protection of the first aider	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing.

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

Symptoms	Burning sensation. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Inhalation	Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Eyes	Burning sensation. May cause permanent damage if eye is not immediately irrigated.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea

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

Note to doctors	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical. Carbon dioxide (CO ₂). Water spray. Alcohol resistant foam.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Hazardous combustion products	Carbon oxides.

5.3. Advice for firefighters

Special protective equipment and	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.
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precautions for fire-fighters Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material.

Other information Ventilate the area. 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 Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

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 Use personal protection equipment. Avoid breathing vapours or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment.

General hygiene considerations Do not eat, drink or smoke when using this product. 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Ensure that eyewash stations and safety showers are close to the workstation location.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store locked up.

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
PROPAN-1-OL 71-23-8	TWA: 200 ppm TWA: 500 mg/m ³ STEL: 250 ppm STEL: 625 mg/m ³ Sk*

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
PROPAN-1-OL 71-23-8			522 mg/kg [4] [7]

[4] Systemic health effects.

[6] Long term.

[7] Short term.

Derived No Effect Level (DNEL) - General Public No information available.

Chemical name	Oral	Dermal	Inhalation
PROPAN-1-OL 71-23-8	16 mg/kg [4] [6]		93 mg/m ³ [4] [7]

[4] Systemic health effects.

[6] Long term.

[7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
PROPAN-1-OL 71-23-8	6.83 mg/l		0.683 mg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
PROPAN-1-OL 71-23-8	27.5 mg/kg	2.75 mg/kg	96 mg/L	1.49 mg/kg	

8.2. Exposure controls

Engineering controls Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. Use non sparking handtools and explosion-proof electric equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection Tight sealing safety goggles. Use eye protection according to EN 166.

Hand protection Wear suitable gloves. Impervious gloves. 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.

Gloves			
Duration of contact	PPE - Glove material	Glove thickness	Break through time
	Nitrile rubber	0.55 mm	>480 minutes
	Butyl rubber	0.3 mm	>480 minutes

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Gas filter, type A.

General hygiene considerations Do not eat, drink or smoke when using this product. 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state Liquid
Appearance Liquid
Colour Colourless
Odour Alcoholic.
Odour threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	-127 °C	No information available.
Initial boiling point and boiling range	97 °C	No information available.
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits	13.5 Vol %	
Lower flammability or explosive limits	2.1 Vol %	
Flash point	21.5 - 25.5 °C	No information available.
Autoignition temperature	395 - 400 °C	No information available.
Decomposition temperature		No information available.
pH		No information available.
pH (as aqueous solution)	7	solution (20 %).
Kinematic viscosity		No information available.
Dynamic viscosity	2.3 mPa s @ 20°C	No information available.
Water solubility	Soluble in water	No information available.
Solubility(ies)		No information available.
Partition coefficient	log Pow: 0.2	No information available.
Vapour pressure	28 hPa @ 25°C	No information available.
Relative density	0.8037 @ 20°C	No information available.

Bulk density	No information available	No information available
Liquid Density	No information available	No information available
Relative vapour density	2.1	No information available.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	Not considered to be explosive.	
Oxidising properties	Does not meet the criteria for classification as oxidising	

9.2. Other information

Molecular weight	60.1
Refractive Index	1.383 - 1.385 @ 20 °C Evaporation rate 1.0 (n-Butyl acetate = 1)

SECTION 10: Stability and reactivity**10.1. Reactivity**

Reactivity	Stable under recommended storage conditions.
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10.2. Chemical stability

Stability	Stable under normal conditions.
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Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Highly flammable liquid and vapour. Vapours can form explosive mixtures with air. Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.
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10.4. Conditions to avoid

Conditions to avoid	Heat, flames and sparks. static discharge (electrostatic discharge).
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10.5. Incompatible materials

Incompatible materials	Strong acids. Strong oxidising agents.
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10.6. Hazardous decomposition products

Hazardous decomposition products	Carbon oxides.
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SECTION 11: Toxicological information**11.1. Information on toxicological effects****Information on likely routes of exposure****Product Information**

Inhalation	May cause drowsiness or dizziness.
Eye contact	Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	May cause irritation.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms

Redness. Burning. May cause blindness. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Acute toxicity**Numerical measures of toxicity****Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
PROPAN-1-OL	= 2200 mg/kg (Rat)	= 5040 mg/kg (Rabbit)	> 33.8 mg/l (4 h)

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Skin corrosion/irritation**

May cause skin irritation.

PROPAN-1-OL (71-23-8)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Human evidence	Dermal	100%	47 hours	Mild skin irritant
	Human evidence	Dermal	100%	24 hours	Mild skin irritant
	Rabbit	Dermal	500 mg		Mild skin irritant

Serious eye damage/eye irritation

Classification based on data available for ingredients. Causes burns. Causes serious eye damage.

PROPAN-1-OL (71-23-8)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit	eye	20 mg	24 hours	Moderate eye irritation

Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

PROPAN-1-OL (71-23-8)

Method	Species	Exposure route	Results
OECD 406	Guinea pig	Dermal	Not a skin sensitiser

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Carcinogenicity

Based on available data the classification criteria are not met.

Reproductive toxicity

Based on available data the classification criteria are not met.

STOT - single exposure

May cause drowsiness or dizziness.

STOT - repeated exposure

Based on available data the classification criteria are not met.

Component Information

PROPAN-1-OL (71-23-8)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Narcotic effects

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 The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

PROPAN-1-OL (71-23-8)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
	Selenastrum sp	EC50	4480000 µg/l	96 hours	
	Crustacea	LC50	1000000 µg/l	48 hours	
	Daphnia pulex	LC50	2950000 µg/l	48 hours	
	Fish	LC50	3800000 µg/l	96 hours	

12.2. Persistence and degradability

Persistence and degradability Readily biodegradable.

PROPAN-1-OL (71-23-8)

Method	Exposure time	Value	Results
OECD Test No. 301D: Ready Biodegradability: Closed Bottle Test (TG 301 D)	20 days	>70%	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Bioconcentration factor (BCF) 0.88

Component Information

Chemical name	Partition coefficient
PROPAN-1-OL	0.2

12.4. Mobility in soil

Mobility in soil No information available.

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
PROPAN-1-OL	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.

Contaminated packaging

Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

SECTION 14: Transport information**IATA**

14.1 UN number or ID number	UN1274
14.2 UN proper shipping name	N-PROPANOL
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	A3
ERG Code	3L

IMDG

14.1 UN number or ID number	UN1274
14.2 UN proper shipping name	N-PROPANOL
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
EmS-No	F-E, S-D
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	UN1274
14.2 UN proper shipping name	N-PROPANOL
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
Classification code	F1

ADR

14.1 UN number or ID number	UN1274
14.2 UN proper shipping name	N-PROPANOL
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
Classification code	F1
Tunnel restriction code	(D/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 does not contain substances subject to authorisation (UK REACH - Annex XIV).

This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Dangerous substance category per COMAH Regulations 2015 (as amended)

P5c - FLAMMABLE LIQUIDS

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)

Chemical name	The Biocidal Products Regulations 2001 (as amended)
PROPAN-1-OL - 71-23-8	Product-type 2: Disinfectants and algaecides not intended for direct application to humans or animals Product-type 4: Food and feed area Product-type 1: Human hygiene

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

Not applicable

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

Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	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
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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**

H225 - Highly flammable liquid and vapour

H318 - Causes serious eye damage

H336 - May cause drowsiness or dizziness

Legend

SVHC: Substances of Very High Concern for Authorisation:

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		

Revision Note **SDS sections updated 1 8 9 16**

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) (AEGL(s))
 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 K Winter

Supersedes date 05-Feb-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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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)	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) 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	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)

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to	Use suitable eye protection

personal protection, hygiene and health evaluation	
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa

Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear suitable gloves tested to EN 374 Efficiency of at least 80%
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l

Intermittent release 10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic 522 mg/m³
Consumer - oral, long-term - systemic 16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.3429 mg/kg bw/d	0.002521

PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	28.2857 mg/kg bw/d	0.207983
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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 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
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) - ERC1 - Manufacture of substances

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection

Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to	Use suitable eye protection

personal protection, hygiene and health evaluation	
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252

PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.3429 mg/kg bw/d	0.002521
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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 as an intermediate
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 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)
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) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection

Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to	Use suitable eye protection

personal protection, hygiene and health evaluation	
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process	Worker - inhalative, long-term	25.0396 mg/m ³	0.093431

(synthesis or formulation)	- systemic		
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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 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)	PC27 - Plant protection products
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

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

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
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Control of consumer exposure

Product categories [PC]	PC27 - Plant protection products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 46 mg/min
Exposure duration	Avoid carrying out operation for more than 10 minutes
Use frequency	Avoid carrying out activities involving exposure for more than 4 hours Covers use up to 9 days per year
Risk management measures	Ensure spraying away from persons
Use in room with a volume of minimum	58 m ³
Minimum room ventilation rate for handling/application (air changes per hour)	0.5
Remarks	Body weight 65 kg

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)**

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The Consexpo model has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC27 - Plant protection products	Consumer - dermal, long-term - systemic	0.1745 mg/kg bw/d	0.002154
PC27 - Plant protection products	Consumer - inhalative, short-term - systemic	6.9705 mg/m ³	0.006728

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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 products
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) PROC11 - Non industrial spraying
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) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear suitable gloves tested to EN 374 Efficiency of at least 80%
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC11 - Non industrial spraying

Covers concentrations up to	5%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Moderate application rate (0.3 - 3 l/minute)
Indoor/Outdoor use	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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

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 - dermal, long-term - systemic	2.7429 mg/kg bw/d	0.020168
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	250.3958 mg/m ³	0.934313
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	21.4286 mg/kg bw/d	0.157563
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	27 mg/m ³	0.100746

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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 as laboratory reagent
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 ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies)	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) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

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

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
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Control of worker exposure

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Section 3 - Exposure estimation

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

- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.3429 mg/kg bw/d	0.002521
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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 as laboratory reagent
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
Process category(ies)	PROC15 - Use as laboratory reagent
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) - ERC8a - Wide dispersive indoor use of processing aids in open systems

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

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
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Control of worker exposure	
Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor 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

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.3429 mg/kg bw/d	0.002521
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Processing aid.
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 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)
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) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and	Use suitable eye protection

health evaluation	
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042

PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Cleaning agent
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)	PC4 - Anti-freeze and de-icing products PC9a - Coatings and paints, thinners, paint removers PC24 - Lubricants, greases, release products PC35 - Washing and cleaning products (including solvent based products) PC38 - Welding and soldering products, flux products
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

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

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
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Control of consumer exposure

Product categories [PC]	PC4 - Anti-freeze and de-icing products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 46 mg/min
Exposure duration	Avoid carrying out operation for more than 0.7 minutes
Use frequency	Avoid carrying out activities involving exposure for more than 4 hours Covers use up to 365 days per year
Risk management measures	Ensure spraying away from persons
Use in room with a volume of minimum	58 m ³
Minimum room ventilation rate for handling/application (air changes per hour)	0.5
Remarks	Body weight 65 kg

Product categories [PC]	PC9a - Coatings and paints, thinners, paint removers
Covers concentrations up to	5%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.5 g/event
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers use up to 12 days per year
Release area	20000 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	20 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6
Remarks	Body weight 65 kg

Product categories [PC]	PC24 - Lubricants, greases, release products
Product (sub) category(ies)	Pastes
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Exposure duration	Avoid carrying out operation for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 12 days per year
Exposure route	Dermal
Covers skin contact area up to	820 cm2
Indoor/Outdoor use	Indoor use

Product categories [PC]	PC8 - Biocidal Products (e.g. disinfectants, pest control) PC35 - Washing and cleaning products (including solvent based products)
Product (sub) category(ies)	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Covers concentrations up to	25%
Vapour pressure	2820 Pa
Amounts used	Amount per use 19 g/event
Exposure duration	Avoid carrying out operation for more than 20 minutes
Use frequency	Avoid carrying out activities involving exposure for more than 4 hours Covers use up to 104 days per year
Release area	100000 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	58 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.5
Remarks	Body weight 65 kg

Product categories [PC]	PC8 - Biocidal Products (e.g. disinfectants, pest control) PC35 - Washing and cleaning products (including solvent based products)
Product (sub) category(ies)	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 46 mg/min
Exposure duration	Avoid carrying out operation for more than 0.41 minutes
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers use up to 365 days per year
Risk management measures	Ensure spraying away from persons
Use in room with a volume of minimum	15 m3
Minimum room ventilation rate for handling/application (air changes per hour)	2.5
Remarks	Body weight 65 kg

Product categories [PC]	PC38 - Welding and soldering products, flux products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.1 g/event
Exposure duration	Avoid carrying out operation for more than 10 minutes
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers use up to 6 days per year
Release area	17100 cm ²
Assumes process temperature up to	20 C
Use in room with a volume of minimum	15 m ³
Minimum room ventilation rate for handling/application (air changes per hour)	2.5
Remarks	Body weight 65 kg

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The Consexpo model has been used to estimate consumer exposures unless otherwise indicated The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC4 - Anti-freeze and de-icing products	Consumer - dermal, long-term - systemic	0.4954 mg/kg bw/d	0.006116
PC4 - Anti-freeze and de-icing products	Consumer - inhalative, short-term - systemic	0.87 mg/m ³	0.00084
PC9a - Coatings and paints, thinners, paint removers	Consumer - dermal, long-term - systemic	0.0128 mg/kg bw/d	0.000158
PC9a - Coatings and paints, thinners, paint removers	Consumer - inhalative, short-term - systemic	1032.1794 mg/m ³	0.996312
PC24 - Lubricants, greases, release products	Consumer - dermal, long-term - systemic	5.7167 mg/kg bw/d	0.070576
PC8 - Biocidal Products (e.g. disinfectants, pest control) PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	20.8219 mg/kg bw/d	0.257061
PC8 - Biocidal Products (e.g. disinfectants, pest control) PC35 -	Consumer - inhalative, short-term - systemic	734.4841 mg/m ³	0.708962

Washing and cleaning products (including solvent based products)			
PC8 - Biocidal Products (e.g. disinfectants, pest control) PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	0.2902 mg/kg bw/d	0.003582
PC8 - Biocidal Products (e.g. disinfectants, pest control) PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, short-term - systemic	2.4756 mg/m ³	0.00239
PC38 - Welding and soldering products, flux products	Consumer - dermal, long-term - systemic	0.0253 mg/kg bw/d	0.000312
PC38 - Welding and soldering products, flux products	Consumer - inhalative, short-term - systemic	239.097 mg/m ³	0.230789

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Cleaning agent
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
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) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

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

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
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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

Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	Moderate application rate (0.3 - 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa

Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716

PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	8.5714 mg/kg bw/d	0.063025
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	190 mg/m ³	0.708955
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Cleaning 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)	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) PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring
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) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use

Operational conditions	Covers use at ambient temperatures
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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC11 - Non industrial spraying

Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	Moderate application rate (0.3 - 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor 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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	250.3958 mg/m ³	0.934313
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	21.4286 mg/kg bw/d	0.157563

PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	190 mg/m ³	0.708955
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Coatings
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)	PC1 - Adhesives, sealants PC4 - Anti-freeze and de-icing products PC9a - Coatings and paints, thinners, paint removers PC15 - Non-metal-surface treatment products PC23 - Leather tanning, dye, finishing, impregnation and care products PC24 - Lubricants, greases, release products
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

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

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
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Control of consumer exposure

Product categories [PC]	PC1 - Adhesives, sealants
Covers concentrations up to	14%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.5 g/event
Exposure duration	Avoid carrying out operation for more than 0.5 hour
Use frequency	Avoid carrying out activities involving exposure for more than 4 hours Covers frequency up to once in a year
Release area	15000 cm ²
Assumes process temperature up to	20 C
Use in room with a volume of minimum	20 m ³
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Remarks	Body weight 65 kg
Product categories [PC]	PC4 - Anti-freeze and de-icing products
Covers concentrations up to	3.5%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.25 g/event
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers use up to Covers frequency up to once in a year
Release area	150000 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	34 m3
Minimum room ventilation rate for handling/application (air changes per hour)	1.5
Remarks	Body weight 65 kg
Product categories [PC]	PC9a - Coatings and paints, thinners, paint removers
Covers concentrations up to	5%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.5 g/event
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers frequency up to once in a year
Release area	20000 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	20 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6
Remarks	Body weight 65 kg
Product categories [PC]	PC15 - Non-metal-surface treatment products
Covers concentrations up to	5%
Vapour pressure	2820 Pa
Amounts used	Amount per use 30 mg/min
Exposure duration	Avoid carrying out operation for more than 2 hours
Use frequency	Avoid carrying out operation for more than 132 minutes Covers frequency up to once in a year
Release area	100000 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	20 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6
Remarks	Body weight 65 kg
Product categories [PC]	PC23 - Leather tanning, dye, finishing, impregnation and care products
Covers concentrations up to	3.5%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.25 g/event
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers frequency up to once in a year
Release area	150000 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	34 m3
Minimum room ventilation rate for handling/application (air changes per hour)	1.5

Remarks	Body weight 65 kg
Product categories [PC]	PC23 - Leather tanning, dye, finishing, impregnation and care products
Covers concentrations up to	70%
Vapour pressure	2820 Pa
Amounts used	Amount per use 100 mg/min
Exposure duration	Avoid carrying out activities involving exposure for more than 15 minutes
Use frequency	Avoid carrying out operation for more than 20 minutes Covers use up to 2 days per year
Risk management measures	Ensure spraying away from persons
Use in room with a volume of minimum	34 m3
Minimum room ventilation rate for handling/application (air changes per hour)	1.5
Remarks	Body weight 65 kg
Product categories [PC]	PC24 - Lubricants, greases, release products
Product (sub) category(ies)	Pastes
Covers concentrations up to	20%
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 12 days per year
Covers skin contact area up to	820 cm2
Indoor/Outdoor use	Indoor use

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The Consexpo model has been used to estimate consumer exposures unless otherwise indicated The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC1 - Adhesives, sealants	Consumer - dermal, long-term - systemic	0.003 mg/kg bw/d	0.00036
PC1 - Adhesives, sealants	Consumer - inhalative, short-term - systemic	1016.5761 mg/m ³	0.981251
PC4 - Anti-freeze and de-icing products	Consumer - dermal, long-term - systemic	0.0001 mg/kg bw/d	0.000002

PC4 - Anti-freeze and de-icing products	Consumer - inhalative, short-term - systemic	991.5474 mg/m ³	0.957092
PC9a - Coatings and paints, thinners, paint removers	Consumer - dermal, long-term - systemic	0.0011 mg/kg bw/d	0.000013
PC9a - Coatings and paints, thinners, paint removers	Consumer - inhalative, short-term - systemic	1032.1794 mg/m ³	0.996312
PC15 - Non-metal-surface treatment products	Consumer - dermal, long-term - systemic	0.0076 mg/kg bw/d	0.000094
PC15 - Non-metal-surface treatment products	Consumer - inhalative, short-term - systemic	915.355 mg/m ³	0.883547
PC23 - Leather tanning, dye, finishing, impregnation and care products	Consumer - dermal, long-term - systemic	0.0001 mg/kg bw/d	0.000002
PC23 - Leather tanning, dye, finishing, impregnation and care products	Consumer - inhalative, short-term - systemic	991.5474 mg/m ³	0.957092
PC23 - Leather tanning, dye, finishing, impregnation and care products	Consumer - dermal, long-term - systemic	0.0885 mg/kg bw/d	0.001093
PC23 - Leather tanning, dye, finishing, impregnation and care products	Consumer - inhalative, short-term - systemic	997.3792 mg/m ³	0.962721
PC24 - Lubricants, greases, release products	Consumer - dermal, long-term - systemic	1.1433 mg/kg bw/d	0.014115

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Coatings
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
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) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

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

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
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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

Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	Moderate application rate (0.3 - 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa

Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716

PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	8.5714 mg/kg bw/d	0.063025
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	190 mg/m ³	0.708955
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Coatings
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)	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) 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 SU22 - Professional uses
Sector(s) of use	

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

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

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
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Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection

Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	Moderate application rate (0.3 - 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Indoor/Outdoor use	Indoor 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)**

Freshwater

6.83 mg/l

Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

from/to vessels/large containers at dedicated facilities			
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	250.3958 mg/m ³	0.934313
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	21.4286 mg/kg bw/d	0.157563
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	190 mg/m ³	0.708955
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	28.2857 mg/kg bw/d	0.207983
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Disinfectant
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
Product category(ies)	PC8 - Biocidal Products (e.g. disinfectants, pest control)
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

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

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
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Control of consumer exposure

Product categories [PC]	PC8 - Biocidal Products (e.g. disinfectants, pest control)
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 46 mg/min
Exposure duration	Avoid carrying out operation for more than 0.51 minutes
Use frequency	Avoid carrying out activities involving exposure for more than 1 hour Covers use up to 365 days per year
Risk management measures	Ensure spraying away from persons
Use in room with a volume of minimum	15 m ³
Minimum room ventilation rate for handling/application (air changes per hour)	2.5
Remarks	Body weight 65 kg

Product categories [PC]	PC8 - Biocidal Products (e.g. disinfectants, pest control)
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.02 g/event

Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 365 days per year
Remarks	Body weight 65 kg

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The Consexpo model has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC8 - Biocidal Products (e.g. disinfectants, pest control)	Consumer - dermal, long-term - systemic	0.3609 mg/kg bw/d	0.004456
PC8 - Biocidal Products (e.g. disinfectants, pest control)	Consumer - inhalative, short-term - systemic	2.0495 mg/m ³	0.001978
PC8 - Biocidal Products (e.g. disinfectants, pest control)	Consumer - dermal, long-term - systemic	0.3077 mg/kg bw/d	0.003799

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Lubricants
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 ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor use of substances in closed systems
Product category(ies)	PC24 - Lubricants, greases, release products PC31 - Polishes and wax blends
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
 - ERC9a - Wide dispersive indoor use of substances in closed systems
 - ERC9b - Wide dispersive outdoor use of substances in closed systems

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

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
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Control of consumer exposure

Product categories [PC]	PC24 - Lubricants, greases, release products
Product (sub) category(ies)	Pastes
Covers concentrations up to	20%
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 12 days per year
Covers skin contact area up to	820 cm ²
Indoor/Outdoor use	Indoor use

Product categories [PC]	PC23 - Leather tanning, dye, finishing, impregnation and care products PC31 - Polishes and wax blends
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Product (sub) category(ies)	Polishes, wax / cream (floor, furniture, shoes)
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Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 100 g/event
Exposure duration	Avoid carrying out activities involving exposure for more than 4 hours
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 12 days per year
Covers skin contact area up to	820 cm ²
Indoor/Outdoor use	Indoor use
Use in room with a volume of minimum	20 m ³
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

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
- 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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC24 - Lubricants, greases, release products	Consumer - dermal, long-term - systemic	1.1433 mg/kg bw/d	0.014115
PC23 - Leather tanning, dye, finishing, impregnation and care products PC31 - Polishes and wax blends	Consumer - dermal, long-term - systemic	5.7167 mg/kg bw/d	0.070576
PC23 - Leather tanning, dye, finishing, impregnation and care products PC31 - Polishes and wax blends	Consumer - inhalative, short-term - systemic	58.8235 mg/m ³	0.735294

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Lubricants
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 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 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 PROC17 - Lubrication at high energy conditions and in partly open process
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) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC7 - Industrial use of substances in closed systems

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

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
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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

Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	Moderate application rate (0.3 - 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa

Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC7 - Industrial use of substances in closed systems

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	8.5714 mg/kg bw/d	0.063025
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	190 mg/m ³	0.708955
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681

PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
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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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Lubricants
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 ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor 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 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) PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC17 - Lubrication at high energy conditions and in partly open process
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) - ERC8a - Wide dispersive indoor use of processing aids in open systems
 - ERC8d - Wide dispersive outdoor use of processing aids in open systems
 - ERC9a - Wide dispersive indoor use of substances in closed systems
 - ERC9b - Wide dispersive outdoor use of substances in closed systems

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and	Use suitable eye protection

health evaluation	
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	Moderate application rate (0.3 - 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Surface spraying with no or low compressed air use Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance

exposure	head-product greater than 1m)
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Efficiency of at least 70%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor 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

- 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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	250.3958 mg/m ³	0.934313
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	21.4286 mg/kg bw/d	0.157563
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	190 mg/m ³	0.708955
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC17 - Lubrication at high energy	Worker - inhalative, long-term	150.2375 mg/m ³	0.560588

conditions and in partly open process	- systemic		
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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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Metal working fluids / rolling oils,
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) 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 PROC17 - Lubrication at high energy conditions and in partly open process
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) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

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

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
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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

Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC7 - Industrial spraying
Title	Surface spraying of liquids
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Amounts used	High application rate (> 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection

Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m) Ensure that the worker is in a separated (control) room with independent air supply
Indoor/Outdoor use	Indoor use
Assumes process temperature up to	100 C
Operational conditions	Covers use at ambient temperatures or Elevated temperature

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084

PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	12.5198 mg/m ³	0.046716
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	25.0396 mg/m ³	0.093431
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	25.7143 mg/kg bw/d	0.189076
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	160 mg/m ³	0.597015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.8571 mg/kg bw/d	0.05042
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional

RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Metal working fluids / rolling oils,
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
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) 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 PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC17 - Lubrication at high energy conditions and in partly open process
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) - ERC8a - Wide dispersive indoor use of processing aids in open systems

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

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
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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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection

Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
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
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures
Process category(ies)	PROC11 - Non industrial spraying
Title	Surface spraying of liquids
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	10001 Pa
Amounts used	High application rate (> 3 l/minute)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN 374 Efficiency of at least 80% Use suitable eye protection
Organisational measures to prevent /limit releases, dispersion and exposure	Demonstrable and effective housekeeping practices are in place Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m) Ensure that the worker is in a separated (control) room with independent air supply
Indoor/Outdoor use	Indoor use
Assumes process temperature up to	100 C
Operational conditions	Covers use at ambient temperatures or Elevated temperature
Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week

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) Efficiency of at least 30%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor use
Operational conditions	Covers use at ambient temperatures

Process category(ies)	PROC17 - Lubrication at high energy conditions and in partly open process
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	2820 Pa
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Efficiency of at least 70%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection
Indoor/Outdoor use	Indoor 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

Predicted No Effect Concentration (PNEC)

Freshwater	6.83 mg/l
Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
REACH

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.0343 mg/kg bw/d	0.000252
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	0.000093
PROC2 - Use in closed, continuous process with occasional controlled	Worker - dermal, long-term - systemic	1.3714 mg/kg bw/d	0.010084

exposure			
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	50.0792 mg/m ³	0.186863
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.6857 mg/kg bw/d	0.005042
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	62.599 mg/m ³	0.233578
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	125.1979 mg/m ³	0.467156
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	12.8571 mg/kg bw/d	0.094537
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	160 mg/m ³	0.597015
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.7143 mg/kg bw/d	0.10084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	175.2771 mg/m ³	0.654019
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.4286 mg/kg bw/d	0.201681
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	150.2375 mg/m ³	0.560588

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. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. 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	PROPAN-1-OL
Pure substance/mixture	Substance
REACH registration number	01-2119486761-29-XXXX
CAS No	71-23-8
EC No (EU Index No)	200-746-9
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	Cosmetics, personal care products Disinfectant
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)	PC28 - Perfumes, fragrances PC35 - Washing and cleaning products (including solvent based products) PC39 - Cosmetics, personal care products
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

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

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
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Control of consumer exposure

Product categories [PC]	PC28 - Perfumes, fragrances
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.61 g/event
Exposure duration	Avoid carrying out operation for more than 4.8 Seconds
Use frequency	Avoid carrying out operation for more than 5 minutes Covers exposure up to 1095 days per year
Use in room with a volume of minimum	10 m ³
Minimum room ventilation rate for handling/application (air changes per	2

hour)	
Remarks	Body weight 65 kg

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Product (sub) category(ies)	Soap Liquid
Covers concentrations up to	20%
Vapour pressure	2820 Pa
Amounts used	Amount per use 26.1 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 329 days per year
Remarks	Body weight 65 kg

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Product (sub) category(ies)	Soap Liquid
Covers concentrations up to	35%
Vapour pressure	2820 Pa
Amounts used	Amount per use 3 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 1825 days per year
Remarks	Body weight 65 kg

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	10%
Vapour pressure	2820 Pa
Amounts used	Amount per use 60 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 260 days per year
Remarks	Body weight 65 kg

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	90%
Vapour pressure	2820 Pa
Amounts used	Amount per use 1 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 1460 days per year
Remarks	Body weight 65 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	30%
Vapour pressure	2820 Pa
Amounts used	Amount per use 8 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 730 days per year
Remarks	Body weight 61 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.01 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 1460 days per year
Remarks	Body weight 61 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	70%
Vapour pressure	2820 Pa
Amounts used	Amount per use 2.6 g/event
Exposure duration	Avoid carrying out operation for more than 10.2 Seconds
Use frequency	Avoid carrying out operation for more than 5 minutes Covers use up to 730 days per year

Use in room with a volume of minimum	10 m3
Minimum room ventilation rate for handling/application (air changes per hour)	2
Remarks	Body weight 65 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 100 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 10 days per year
Remarks	Body weight 65 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.8 g/event
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 365 days per year
Remarks	Body weight 61 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.05 g/event
Use frequency	Avoid carrying out operation for more than 5 minutes Covers exposure up to 156 days per year
Release area	19 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	1
Remarks	Body weight 61 kg

Product categories [PC]	PC39 - Cosmetics, personal care products
Covers concentrations up to	100%
Vapour pressure	2820 Pa
Amounts used	Amount per use 0.2 g/event
Use frequency	Avoid carrying out operation for more than 5 minutes Covers exposure up to 156 days per year
Release area	25 cm2
Assumes process temperature up to	20 C
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	1
Remarks	Body weight 61 kg

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)

Freshwater 6.83 mg/l

Freshwater sediment	27.5 mg/kg
Marine water	0.683 mg/l
Marine sediment	2.75 mg/kg
Soil	1.49 mg/kg
Impact on Sewage Treatment	96 mg/l
Intermittent release	10 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, short-term - systemic	522 mg/m ³
Consumer - oral, long-term - systemic	16 mg/kg

Calculation method

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated The Consexpo model has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC28 - Perfumes, fragrances	Consumer - dermal, long-term - systemic	28.1538 mg/kg bw/d	0.347578
PC28 - Perfumes, fragrances	Consumer - inhalative, short-term - systemic	1.2585 mg/m ³	0.001215
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	72.3869 mg/kg bw/d	0.893666
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	80.7692 mg/kg bw/d	0.997151
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	65.7534 mg/kg bw/d	0.811771
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	55.3846 mg/kg bw/d	0.907945
PC39 - Cosmetics, personal care products	Consumer - dermal, long-term - systemic	78.6885 mg/kg bw/d	0.971463
PC39 - Cosmetics, personal care products	Consumer - oral, long-term - systemic	0.6557 mg/kg bw/d	0.01057
PC39 - Cosmetics, personal care products	Consumer - dermal, long-term - systemic	56 mg/kg bw/d	0.691358
PC39 - Cosmetics, personal care products	Consumer - inhalative, short-term - systemic	288.959 mg/m ³	0.278918
PC39 - Cosmetics, personal care products	Consumer - dermal, long-term - systemic	42.1496 mg/kg bw/d	0.520366
PC39 - Cosmetics, personal care products	Consumer - dermal, long-term - systemic	13.1149 mg/kg bw/d	0.161911
PC39 - Cosmetics, personal care products	Consumer - dermal, long-term - systemic	0.3503 mg/kg bw/d	0.004325
PC39 - Cosmetics, personal care products	Consumer - inhalative, short-term - systemic	238.3647 mg/m ³	0.230082
PC39 - Cosmetics, personal care products	Consumer - dermal, long-term - systemic	1.4013 mg/kg bw/d	0.0173
PC39 - Cosmetics, personal care products	Consumer - inhalative, short-term - systemic	476.7294 mg/m ³	0.460163

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