

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

Supersedes date 02-Oct-2025

Revision date 06-Jan-2026

Revision Number 9.01

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

1.1. Product identifier

Product Code(s)	461
Safety data sheet number	00461
Product Name	PROPAN-2-OL
Index No	603-117-00-0
EC Number	200-661-7
CAS No	67-63-0
Synonyms	IPA, IPS, SEC PROPYL ALCOHOL, Isopropyl alcohol, CAFSOL 2, EVERBLEND 15, AL11, IPA LOW ODOUR, ISOPROPANOL, ISOPROPANOL PC SSL, ISOPROPANOL PC SHL, ISOPROPANOL SSL, MX-THINNER HTS 83698, ISOPROPANOL SHELL, ISOPROPANOL EP, ISOPROPANOL (PHARMA), ISOPROPANOL MIN 99.5%, ISOPROPANOL MIN. 99.8%, ISOPROPANOL (IPA), ISOPROPANOL C+, ISOPROPYL ALCOHOL TT-I-735A, ISOPROPANOL PH SHL, ISOPROPANOL IND, ISOPROPYL ALCOHOL 100%, ISOPROPANOL PC INS, ISOPROPANOL PREM PURE, ISOPROPANOL KML, ISOPROPANOL COSMETIC GRADE, ISOPROPANOL C+ SHL, ISOPROPANOL EXN, ISOPROPANOL PURE, ISOPROPYL ALCOHOL 99% DR444, UNIQ ISOPROPANOL LOW CARBON, ISOPROPANOL DSB
Pure substance/mixture	Substance
Contains PROPAN-2-OL	
Molecular weight	60.1

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

Recommended use	Industrial use Solvent Cosmetic additive Pharmaceuticals Cleaning agent Metal working fluids / rolling oils, Lubricant Laboratory reagent 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)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Flammable liquids	Category 2 - (H225)
Serious eye damage/eye irritation	Category 2 - (H319)
Specific target organ toxicity — single exposure	Category 3 - (H336)
Category 3 Narcotic effects	

2.2. Label elements

Contains PROPAN-2-OL



Signal word

Danger

Hazard statements

H319 - Causes serious eye irritation

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

P312 - Call a POISON CENTER or doctor if you feel unwell

P370 + P378 - In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish

P501 - Dispose of contents/ container to an approved waste disposal plant

Additional information

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

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-2-OL 67-63-0	>=99%	200-661-7 (603-117-00-0)	-	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3 (H336)	STOT SE 3 (H336) :: C>=20%	-	-

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

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

SECTION 4: First aid measures**4.1. Description of first aid measures**

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. 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. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor.
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	May cause redness and tearing of the eyes. Burning sensation. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Causes serious eye irritation.
Inhalation	Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Eyes	Causes serious eye irritation.
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 (CO₂). 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 precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. 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. Use non sparking handtools and explosion-proof electric equipment.

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. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition.

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. Remove contaminated clothing and protective equipment before entering eating areas.

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. Protect from direct sunlight. Keep at temperatures between 5 and 25 °C. Avoid contact with: Reducing agents. Oxidising agents. alkali. Acids. Amines. Iron. Aluminium.

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-2-OL 67-63-0	TWA: 400 ppm TWA: 999 mg/m ³ STEL: 500 ppm STEL: 1250 mg/m ³

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-2-OL 67-63-0		888 mg/kg bw/day [4] [6]	500 mg/m ³ [4] [6]

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

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
PROPAN-2-OL 67-63-0	26 mg/kg bw/day [4] [6]	319 mg/kg bw/day [4] [6]	89 mg/m ³ [4] [6]

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

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
PROPAN-2-OL 67-63-0	140.9 mg/L	140.9 mg/L	140.9 mg/L		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
PROPAN-2-OL 67-63-0	552 mg/kg sediment dw	552 mg/kg sediment dw	2251 mg/L	28 mg/kg soil dw	160 mg/kg food

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.

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	>=0.35 mm	>480 minutes
	Butyl rubber	>=0.5 mm	>480 minutes
	Polychloroprene.	>=0.5 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. Remove contaminated clothing and protective equipment before entering eating areas.

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	-88 °C	No information available.
Initial boiling point and boiling range	82 - 83 °C	No information available.
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits	12 %(V)	
Lower flammability or explosive limits	2 %(V)	
Flash point	12 °C	No information available.
Autoignition temperature	425 °C	No information available.
Decomposition temperature		No information available.
pH		No information available.
pH (as aqueous solution)		No information available.
Kinematic viscosity		No information available.
Dynamic viscosity	2.5 mPa s @ 20°C	No information available.
Water solubility	Soluble in water	No information available.
Solubility(ies)		No information available.
Partition coefficient	log Pow: 0.05, OECD 107	No information available.
Vapour pressure	42 hPa @ 20°C	No information available.
Relative density	0.78-0.79 @ 20°C	No information available.
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density	2	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	1.376 - 1.378 @ 20 °C:

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Stable under recommended storage conditions.

10.2. Chemical stability

Stability Stable under normal conditions.

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.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks. static discharge (electrostatic discharge). Protect from direct sunlight.

10.5. Incompatible materials

Incompatible materials Alkaline earth metals. Amines. Iron. Aluminium. Acids. Alkali. Oxidising agents. Reducing agent.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. May cause drowsiness or dizziness. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
Skin contact	Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms May cause redness and tearing of the eyes. Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Causes serious eye irritation.

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

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
PROPAN-2-OL	= 5840 mg/kg (Rat)	= 12800 mg/kg (Rabbit)	= 72.6 mg/l (Rat) 4h

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

Skin corrosion/irritation May cause skin irritation. May cause slight irritation.

PROPAN-2-OL (67-63-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal		4 hours	non-irritant

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

PROPAN-2-OL (67-63-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit				Causes serious eye irritation

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

PROPAN-2-OL (67-63-0)

Method	Species	Exposure route	Results
OECD Test No. 406: Skin Sensitisation	Guinea pig	Dermal	Negative
			No signs of respiratory sensitization have been reported.

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

Component Information

PROPAN-2-OL (67-63-0)

Method	Species	Results
OECD Test No. 474: Mammalian Erythrocyte Micronucleus Test	Mammalian-Animal	Negative

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

Component Information

PROPAN-2-OL (67-63-0)

Method	Species	Results
OECD Test No. 451: Carcinogenicity Studies	Rat	Negative

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

STOT - single exposure May cause drowsiness or dizziness.

PROPAN-2-OL (67-63-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					May cause drowsiness or dizziness

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

Component Information
PROPAN-2-OL (67-63-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
NOAEC	Rat	Inhalation Vapour	>= 5000 ppm		

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-2-OL (67-63-0)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test	Algae	EC50	> 1000 mg/L	72 hours	
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	EC50	13300 mg/L	48 hours	
OECD Test No. 203: Fish, Acute Toxicity Test	Fish	LC50	9640 mg/L	96 hours	

12.2. Persistence and degradability

Persistence and degradability Readily biodegradable.

PROPAN-2-OL (67-63-0)

Method	Exposure time	Value	Results
	30 days	70 - 84% Biodegradation	Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

Component Information

Chemical name	Partition coefficient
PROPAN-2-OL	0.05

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-2-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 UN1219
 14.2 UN proper shipping name ISOPROPANOL
 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 A180
 ERG Code 3L

IMDG

14.1 UN number or ID number UN1219
 14.2 UN proper shipping name ISOPROPANOL
 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 UN1219
 14.2 UN proper shipping name ISOPROPANOL
 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 601
 Classification code F1

ADR

14.1 UN number or ID number UN1219
 14.2 UN proper shipping name ISOPROPANOL
 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 601
 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 contains one or more substances subject to restriction (UK REACH - Annex XVII).

Product restricted per REACH Annex XVII: 3

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
PROPAN-2-OL - 67-63-0	3, 40	-

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-2-OL - 67-63-0	Product-type 2: Disinfectants and algicides 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
KECI - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

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

SECTION 16: Other information**Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H225 - Highly flammable liquid and vapour
H319 - Causes serious eye irritation
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 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
Chronic aquatic toxicity
Aspiration hazard
Ozone

Calculation method
Calculation method
Calculation method
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 J Spenceley

Supersedes date 02-Oct-2025

Revision date 06-Jan-2026

**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-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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
 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

Amounts used

Type	Daily amount per site
Value	<= 1130000
Units	kg/d

Type	Annual site tonnage
Value	<= 345000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	6%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
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Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide a basic standard of general ventilation (1 to 3 air changes per hour)

control dispersion from source towards the worker	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide a basic standard of general ventilation (1 to 3 air changes per hour)

control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method	Used EUSES model
Remarks	Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

Calculation method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no	Worker - inhalative, long-term	0.025 mg/m ³	< 0.01

likelihood of exposure	- systemic		
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038

dedicated facilities			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent

Product category(ies) PC0 - Other Products
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)

Amounts used

Type	Daily amount per site
Value	<= 23330
Units	kg/d

Type	Annual site tonnage
Value	<= 7000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	2.5%
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Release fraction to wastewater from process (initial release prior to RMM)	2%
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Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch	Worker - inhalative, short-term	250.4 mg/m ³	0.25

processes for formulation of preparations and articles (multi-stage and/or significant contact)	- systemic		
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.141
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108

weighing)			
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.129
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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
 PROC15 - Use as laboratory reagent
Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU9
 - Manufacture of fine chemicals

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 30000
Units	kg/d

Type	Annual site tonnage
Value	<= 9000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	2%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01

for exposure arises			
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Coatings
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC15 - Use as laboratory reagent
Product category(ies) PC9a - Coatings and paints, thinners, paint removers
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)

Amounts used

Type	Daily amount per site
Value	<= 176600
Units	kg/d

Type	Annual site tonnage
Value	<= 53000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	2.5%
Release fraction to wastewater from process (initial release prior to RMM)	2%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch	Worker - combined, long-term		0.141

processes for formulation of preparations and articles (multi-stage and/or significant contact)	- systemic		
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent
Product category(ies) PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU19 - Building and construction work

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

Amounts used

Type	Daily amount per site
Value	<= 176600
Units	kg/d

Type	Annual site tonnage
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Value	<= 53000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Supervision in place to check that the RMMs in place are being used correctly and OCs

/limit releases, dispersion and exposure	followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Supervision in place to check that the RMMs in place are being used correctly and OCs followed

exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented

	For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented

	For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

**Calculation method
Remarks**

Used EUSES model
Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch processes for formulation of	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

preparations and articles (multi-stage and/or significant contact)			
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.141
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	42.86 mg/kg bw/d	0.048
PROC7 - Industrial spraying	Worker - combined, long-term - systemic		0.173
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or	Worker - dermal, long-term -	6.86 mg/kg bw/d	< 0.01

preparation into small containers (dedicated filling line, including weighing)	systemic		
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.156
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.141
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.129
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
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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) 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
 PROC10 - Roller application or brushing
 PROC11 - Non industrial spraying
 PROC13 - Treatment of articles by dipping and pouring
 PROC19 - Hand-mixing with intimate contact and only PPE available
Product category(ies) PC9a - Coatings and paints, thinners, paint removers
Sector(s) of use SU19 - Building and construction work SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 29
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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
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	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	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to	<= 40°C
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Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear suitable respiratory protection. >= 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	<0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31

PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	84.85 mg/kg bw/d	0.096
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic		0.396
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
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 GBR

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

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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) PC9a - Coatings and paints, thinners, paint removers
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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 29
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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]	PC9a - Coatings and paints, thinners, paint removers
Covers concentrations up to	25%
Physical form of product	Liquid

Amounts used	Amount per use <= 5 g/event
Exposure duration	Avoid carrying out operation for more than 1 hour 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

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)**

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PC9a - Coatings and paints, thinners, paint removers	Consumer - inhalative, long-term - systemic	39.06 mg/m ³	0.439
PC9a - Coatings and paints, thinners, paint removers	Consumer - dermal, long-term - systemic	86.77 mg/kg bw/d	0.272
PC9a - Coatings and paints, thinners, paint removers	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC9a - Coatings and paints, thinners, paint removers	Consumer - combined, long-term - systemic		0.711

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

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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
 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
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC15 - Use as laboratory reagent
Product category(ies) PC35 - Washing and cleaning products (including solvent based products)
Sector(s) of use SU0 - Other 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

Amounts used

Type	Daily amount per site
Value	<= 70000
Units	kg/d

Type	Annual site tonnage
Value	<= 21000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
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Release fraction to wastewater from process (initial release prior to RMM)	100%
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Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid

Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method
Remarks

Used EUSES model
Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	42.86 mg/kg bw/d	0.048
PROC7 - Industrial spraying	Worker - combined, long-term - systemic		0.173
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging)	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

from/to vessels/large containers at non dedicated facilities			
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.156
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.141
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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) 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
 PROC10 - Roller application or brushing
 PROC11 - Non industrial spraying
 PROC13 - Treatment of articles by dipping and pouring
 PROC19 - Hand-mixing with intimate contact and only PPE available
Product category(ies) PC35 - Washing and cleaning products (including solvent based products)
Sector(s) of use SU0 - Other 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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.55
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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
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	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	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to	<= 40°C
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Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	<0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31

PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	84.85 mg/kg bw/d	0.096
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic		0.396

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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) PC35 - Washing and cleaning products (including solvent based 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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.183
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	5%
Amounts used	Amount per use <= 15 g/event

Exposure duration	Avoid carrying out operation for more than 0.5 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	0.05%
Amounts used	Amount per use <= 15 g/event
Exposure duration	Avoid carrying out operation for more than 0.5 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	5%
Amounts used	Amount per use <= 27 g/event
Exposure duration	Avoid carrying out operation for more than 0.33 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	0.5%
Amounts used	Amount per use <= 27 g/event
Exposure duration	Avoid carrying out operation for more than 0.33 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	5%
Amounts used	Amount per use <= 27 g/event
Exposure duration	Avoid carrying out operation for more than 0.33 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	5%
Amounts used	Amount per use <= 15 g/event
Exposure duration	Avoid carrying out operation for more than 0.5 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	2082.5
Indoor/Outdoor use	Indoor

Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
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Product (sub) category(ies)	Cleaner Sprays
Covers concentrations up to	15%
Amounts used	Amount per use <= 35 g/event
Exposure duration	Avoid carrying out operation for more than 0.17 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	Spraying
Covers skin contact area up to	210.0
Indoor/Outdoor use	Indoor

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	28.84 mg/m ³	0.324
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	17.35 mg/kg bw/d	0.054
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		0.379
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	0.288 mg/m ³	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	0.174 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	56.34 mg/m ³	0.633
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	17.35 mg/kg bw/d	0.054

PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		0.687
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	5.634 mg/m ³	0.063
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	1.735 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		0.069
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	56.34 mg/m ³	0.633
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	17.35 mg/kg bw/d	0.054
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		0.687
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	28.84 mg/m ³	0.324
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	17.35 mg/kg bw/d	0.054
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		0.379
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	52.93 mg/m ³	0.595
PC35 - Washing and cleaning products (including solvent based products)	Consumer - dermal, long-term - systemic	5.25 mg/kg bw/d	0.016
PC35 - Washing and cleaning products (including solvent based products)	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - combined, long-term - systemic		0.611

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Oil field drilling and production operations
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
Product category(ies) PC16 - Heat transfer fluids PC24 - Lubricants, greases, release products PC41
Sector(s) of use SU2a - Mining (without offshore industries) SU2b - Offshore industries 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

Amounts used

Type	Daily amount per site
Value	<= 37250
Units	kg/d

Type	Annual site tonnage
Value	<= 745
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to
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	vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	6.26 mg/m ³	0.013

PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	25.04 mg/m ³	0.025
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.014
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	12.52 mg/m ³	0.025
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	50.08 mg/m ³	0.05
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.026
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or	Worker - combined, long-term		0.053

preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	- 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. 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-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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
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
Product category(ies) PC16 - Heat transfer fluids PC17 - Hydraulic fluids
Sector(s) of use SU0 - Other 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

Amounts used

Type	Daily amount per site
Value	<= 53330
Units	kg/d

Type	Annual site tonnage
Value	<= 16000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process	100%
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(initial release prior to RMM)	
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³

Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	6.26 mg/m ³	0.013
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	25.04 mg/m ³	0.025
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.014
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	12.52 mg/m ³	0.025
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	50.08 mg/m ³	0.05
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.026
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or	Worker - dermal, long-term -	13.71 mg/kg bw/d	0.015

preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	systemic		
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.156
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.141
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	42.86 mg/kg bw/d	0.048
PROC7 - Industrial spraying	Worker - combined, long-term - systemic		0.173
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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) 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
 PROC17 - Lubrication at high energy conditions and in partly open process
 PROC18 - Greasing at high energy conditions
 PROC19 - Hand-mixing with intimate contact and only PPE available
 PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Product category(ies) PC16 - Heat transfer fluids PC17 - Hydraulic fluids
Sector(s) of use SU0 - Other 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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.88
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC18 - Greasing at high energy conditions
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301

weighing)			
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	4.116 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.155
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301

PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	84.85 mg/kg bw/d	0.096
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic		0.396
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - combined, long-term - systemic		0.281
PROC18 - Greasing at high energy conditions	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC18 - Greasing at high energy conditions	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC18 - Greasing at high energy conditions	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC18 - Greasing at high energy conditions	Worker - combined, long-term - systemic		0.266
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - dermal, long-term - systemic	1.71 mg/kg bw/d	< 0.01
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - combined, long-term - systemic		0.252

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
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Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Metal working fluids
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
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC17 - Lubrication at high energy conditions and in partly open process
Product category(ies) PC16 - Heat transfer fluids PC24 - Lubricants, greases, release products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU17 - General manufacturing

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 10000
Units	kg/d

Type	Annual site tonnage
Value	<= 200
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to	<= 40°C
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Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	42.86 mg/kg bw/d	0.048
PROC7 - Industrial spraying	Worker - combined, long-term - systemic		0.173
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch	Worker - combined, long-term		0.141

processes for formulation of preparations and articles (multi-stage and/or significant contact)	- systemic		
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.19
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - combined, long-term - systemic		0.081

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC10 - Roller application or brushing
 PROC11 - Non industrial spraying
 PROC13 - Treatment of articles by dipping and pouring
 PROC17 - Lubrication at high energy conditions and in partly open process
 PROC19 - Hand-mixing with intimate contact and only PPE available
Product category(ies) PC16 - Heat transfer fluids PC24 - Lubricants, greases, release products
Sector(s) of use SU17 - General manufacturing SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.011
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment

Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

exposure	
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601

and/or significant contact)			
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC19 - Hand-mixing with intimate	Worker - inhalative, long-term	150.2 mg/m ³	0.301

contact and only PPE available	- systemic		
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	84.85 mg/kg bw/d	0.096
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic		0.396
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	4.116 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.155
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC17 - Lubrication at high energy conditions and in partly open process	Worker - combined, long-term - systemic		0.081

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Blowing 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)
 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)
 PROC12 - Use of blow agents in manufacture of foam
Product category(ies) PC0 - Other Products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU17 - General manufacturing

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 20000
Units	kg/d

Type	Annual site tonnage
Value	<= 6000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%

Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC12 - Use of blow agents in manufacture of foam
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d

Consumer - inhalative, long-term - systemic

89 mg/m³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC12 - Use of blow agents in manufacture of foam	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC12 - Use of blow agents in manufacture of foam	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC12 - Use of blow agents in manufacture of foam	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC12 - Use of blow agents in manufacture of foam	Worker - combined, long-term - systemic		0.05

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Binder and Release agents
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
 PROC6 - Calendaring operations
 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
 PROC10 - Roller application or brushing
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Product category(ies) PC24 - Lubricants, greases, release products
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU17 - General manufacturing

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 20000
Units	kg/d

Type	Annual site tonnage
Value	<= 6000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to	<= 40°C
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Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%

Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC6 - Calendaring operations	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC6 - Calendaring operations	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC6 - Calendaring operations	Worker - combined, long-term - systemic		0.281
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	42.86 mg/kg bw/d	0.048
PROC7 - Industrial spraying	Worker - combined, long-term - systemic		0.173
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or	Worker - dermal, long-term -	16.45 mg/kg bw/d	0.019

brushing	systemic		
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.129

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Binder and Release agents
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) PROC6 - Calendaring operations
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC10 - Roller application or brushing
 PROC11 - Non industrial spraying
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Product category(ies) PC24 - Lubricants, greases, release products
Sector(s) of use SU17 - General manufacturing SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.275
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Assumes a good basic standard of occupational hygiene is implemented

/limit releases, dispersion and exposure	For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)**

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or	Worker - dermal, long-term -	8.226 mg/kg bw/d	< 0.01

preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	systemic		
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC6 - Calendaring operations	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC6 - Calendaring operations	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC6 - Calendaring operations	Worker - combined, long-term - systemic		0.081
PROC14 - Production of preparations or articles by tableting, compression,	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05

extrusion, pelettising			
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.054

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Use in agrochemicals
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC15 - Use as laboratory reagent
Product category(ies) PC0 - Other Products
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)

Amounts used

Type	Daily amount per site
Value	<= 2000
Units	kg/d

Type	Annual site tonnage
Value	<= 200
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	2%
Release fraction to wastewater from process (initial release prior to RMM)	2.5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	>= 2000 m3/d
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plant flow	
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method	Used EUSES model
Remarks	Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

Calculation method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
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PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038

dedicated facilities			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Use in agrochemicals
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
 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
Product category(ies) PC0 - Other Products
Sector(s) of use SU1 - Agriculture, forestry, fishery SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.011
Units	kg/d

Type	Fraction of EU tonnage used in region
Value	10%

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure
Title	Storage
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
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% See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
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% Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Assumes a good basic standard of occupational hygiene is implemented

/limit releases, dispersion and exposure	For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
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% See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
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% Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
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% See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	5%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
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% Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
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Covers concentrations up to	5%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	5%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide a basic standard of general ventilation (1 to 3 air changes per hour)

control dispersion from source towards the worker	For further specification, refer to section 8 of the SDS
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% See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.25 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	1.002 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with	Worker - dermal, long-term - systemic	0.274 mg/kg bw/d	< 0.01

occasional controlled exposure			
PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.251
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	52.58 mg/m ³	0.105
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	210.3 mg/m ³	0.21
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	1.645 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.107
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.0012 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	1.7 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.0006 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	0.24 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	26.29 mg/m ³	0.053
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	105.1 mg/m ³	0.105
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	1.645 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.054

from/to vessels/large containers at dedicated facilities			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	0.0007 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	0.125 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	3.5 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	0.166 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		< 0.01
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	100.1 mg/m ³	< 0.01
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	1.097 mg/kg bw/d	< 0.01
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.051
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	350.5 mg/m ³	0.701
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	2.143 mg/kg bw/d	< 0.01
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.701
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	0.0007 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	0.125 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		< 0.01
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	3.5 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	0.166 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	0.548 mg/kg bw/d	< 0.01

PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.251
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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. 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-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Use in agrochemicals
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) PC12 - Fertilisers
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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.275
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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]	PC12 - Fertilisers
Covers concentrations up to	10%
Exposure duration	1 events per day

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Covers skin contact area up to	857.5

Product categories [PC]	PC12 - Fertilisers
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Product categories [PC]	PC12 - Fertilisers
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PC12 - Fertilisers	Consumer - inhalative, long-term - systemic	0 mg/m ³	< 0.01
PC12 - Fertilisers	Consumer - dermal, long-term - systemic	14.29 mg/kg bw/d	0.045
PC12 - Fertilisers	Consumer - oral, long-term - systemic	0.5 mg/kg bw/d	0.019
PC12 - Fertilisers	Consumer - combined, long-term - systemic		0.064
PC12 - Fertilisers	Consumer - inhalative, long-term - systemic	0.0017 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PC12 - Fertilisers	Consumer - dermal, long-term - systemic	0.206 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01
PC12 - Fertilisers	Consumer - inhalative, long-term - systemic	0.017 mg/m ³ (ECPA_OWB 4.0)	< 0.01
PC12 - Fertilisers	Consumer - dermal, long-term - systemic	2.35 mg/kg bw/d (ECPA_OWB 4.0)	< 0.01

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are

adopted, then users should ensure that risks are managed to at least equivalent levels.

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
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Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Fuels
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC7 - Industrial use of substances in closed systems
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 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
 PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

Product category(ies) PC13 - Fuels
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8
 - Manufacture of bulk, large scale chemicals (including petroleum products)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 17500
Units	kg/d

Type	Annual site tonnage
Value	<= 350
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	>= 2000 m3/d
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plant flow	
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method	Used EUSES model
Remarks	Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

Calculation method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous	Worker - combined, long-term		0.127

process with occasional controlled exposure	- systemic		
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - combined, long-term - systemic		0.126

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Fuels
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor use of substances in closed systems
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Product category(ies) PC13 - Fuels
Sector(s) of use SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC9a - Wide dispersive indoor use of substances in closed systems
 - ERC9b - Wide dispersive outdoor use of substances in closed systems

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.0055
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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	5%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	5%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	5%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

exposure	
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

Environmental release category(ies) - ERC9a - Wide dispersive indoor use of substances in closed systems
- ERC9b - Wide dispersive outdoor use of substances in closed systems

Predicted No Effect Concentration (PNEC)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2

and/or significant contact)			
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	2.742 mg/kg bw/d	< 0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.103
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	2.742 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.103
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	12.52 mg/m ³	0.025
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	50.08 mg/m ³	0.05
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	2.742 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.028
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected	Worker - combined, long-term - systemic		0.126

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are

adopted, then users should ensure that risks are managed to at least equivalent levels.

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Fuels
Type Consumer
Main user group Consumer uses: Private households (= general public = consumers)
Environmental release category(ies) ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category ESVOC SpERC 9.12c.v1
Product category(ies) PC13 - Fuels
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) - ERC9a - Wide dispersive indoor use of substances in closed systems
 - ERC9b - Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category - ESVOC SpERC 9.12c.v1

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.0011
Units	kg/d

Type	Fraction of EU tonnage used in region
Value	0.1

Type	Fraction of regional tonnage used locally
Value	0.0005

Other operational conditions of use affecting environmental exposure

Emission days	>= 365
Release fraction to air from process (initial release prior to RMM)	0.01%
Release fraction to wastewater from process (initial release prior to RMM)	0.001%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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]	PC13 - Fuels
Covers concentrations up to	5%
Physical form of product	Liquid
Amounts used	Amount per use <= 15 g/event
Exposure duration	Avoid carrying out operation for more than 0.25 hours 1 events per day
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Remarks	No Spraying
Covers skin contact area up to	210.0
Indoor/Outdoor use	Indoor

Section 3 - Exposure estimation

Environmental release category(ies) - ERC9a - Wide dispersive indoor use of substances in closed systems
- ERC9b - Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category - ESVOC SpERC 9.12c.v1

Predicted No Effect Concentration (PNEC)

Calculation method	Used EUSES model
Remarks	Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PC13 - Fuels	Consumer - inhalative, long-term - systemic	32.60 mg/m ³	0.366
PC13 - Fuels	Consumer - dermal, long-term - systemic	1.75 mg/kg bw/d	< 0.01
PC13 - Fuels	Consumer - oral, long-term - systemic	0 mg/kg bw/d	< 0.01
PC13 - Fuels	Consumer - combined, long-term - systemic		0.372

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
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Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

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Section 1 - Title

Title Functional fluids
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC7 - Industrial use of substances in closed systems
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Product category(ies) PC16 - Heat transfer fluids
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU23 - Recycling

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 2500
Units	kg/d

Type	Annual site tonnage
Value	<= 50
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	>= 2000 m3/d
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plant flow	
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)

Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01

exposure			
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01

weighing)			
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Functional fluids
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC9a - Wide dispersive indoor use of substances in closed systems ERC9b - Wide dispersive outdoor use of substances in closed systems
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
 PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Product category(ies) PC16 - Heat transfer fluids
Sector(s) of use SU22 - Professional uses SU23 - Recycling

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC9a - Wide dispersive indoor use of substances in closed systems
 - ERC9b - Wide dispersive outdoor use of substances in closed systems

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.000275
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent	Assumes a good basic standard of occupational hygiene is implemented

/limit releases, dispersion and exposure	For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

**Environmental release category(ies) - ERC9a - Wide dispersive indoor use of substances in closed systems
- ERC9b - Wide dispersive outdoor use of substances in closed systems**

**Predicted No Effect Concentration
(PNEC)**

**Calculation method
Remarks**

Used EUSES model
Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or	Worker - combined, long-term		0.141

preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	- systemic		
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	4.116 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.155
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, long-term - systemic	15.02 mg/m ³	0.03
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, short-term - systemic	60.1 mg/m ³	0.06
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - dermal, long-term - systemic	1.026 mg/kg bw/d	<0.1
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - combined, long-term - systemic		0.031

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Anti-freeze and de-icing 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) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC11 - Non industrial spraying
Product category(ies) PC4 - Anti-freeze and de-icing products
Sector(s) of use SU0 - Other 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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.0011
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or	Worker - combined, long-term		0.084

preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	- systemic		
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 road and construction 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) 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
Product category(ies) PC0 - Other Products
Sector(s) of use SU19 - Building and construction work SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.11
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

exposure	
Indoor/Outdoor use	Outdoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC11 - Non industrial spraying
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to <= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01

dedicated facilities			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	43.82 mg/m ³	0.088
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	175.2 mg/m ³	0.175
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.095
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	30.05 mg/m ³	0.06
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	120.2 mg/m ³	0.12
PROC11 - Non industrial spraying	Worker - dermal, long-term - systemic	64.28 mg/kg bw/d	0.072
PROC11 - Non industrial spraying	Worker - combined, long-term - systemic		0.132

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Explosives
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Product category(ies) PC11 - Explosives
Sector(s) of use SU2a - Mining (without offshore industries) 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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 3.96
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to <= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01

dedicated facilities			
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Use in rubber production and processing.
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 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
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU11 - Manufacture of rubber products SU19 - Building and construction work

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Amounts used

Type	Daily amount per site
Value	<= 10000
Units	kg/d

Type	Annual site tonnage
Value	<= 200
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	35%
Release fraction to wastewater from process (initial release prior to RMM)	0.005%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment

health evaluation	
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment

Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC7 - Industrial spraying
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Supervision in place to check that the RMMs in place are being used correctly and OCs followed

exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Supervision in place to check that the RMMs in place are being used correctly and OCs followed

exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C
Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

Environmental release category(ies) - ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Predicted No Effect Concentration (PNEC)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01

PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.141
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC6 - Calendaring operations	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC6 - Calendaring operations	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC6 - Calendaring operations	Worker - combined, long-term - systemic		0.281
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

	- systemic		
PROC7 - Industrial spraying	Worker - dermal, long-term - systemic	42.86 mg/kg bw/d	0.048
PROC7 - Industrial spraying	Worker - combined, long-term - systemic		0.173
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015

PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.141
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.129
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.156

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Use in polymer processing.
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC7 - Industrial use of substances in closed systems
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
 PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC6 - Calendaring operations
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC15 - Use as laboratory reagent
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
 SU12 - Manufacture of plastics products, including compounding and conversion

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 10000
Units	kg/d

Type	Annual site tonnage
Value	<= 1000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to	<= 40°C
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Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
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Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.141
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC6 - Calendaring operations	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC6 - Calendaring operations	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC6 - Calendaring operations	Worker - combined, long-term - systemic		0.281
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or	Worker - dermal, long-term -	13.71 mg/kg bw/d	0.015

preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	systemic		
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.141
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.129
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.251

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Use in polymer processing.
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) PROC6 - Calendaring operations
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC13 - Treatment of articles by dipping and pouring
 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
 PROC21 - Low energy manipulation of substances bound in materials and/or articles
Product category(ies) PC32 - Polymer preparations and compounds
Sector(s) of use SU12 - Manufacture of plastics products, including compounding and conversion SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.275
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS

exposure	
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC6 - Calendaring operations
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear a respirator providing a minimum efficiency of 10 APF See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC21 - Low energy manipulation of substances bound in materials and/or articles
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084

dedicated facilities			
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC6 - Calendaring operations	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC6 - Calendaring operations	Worker - dermal, long-term - systemic	27.43 mg/kg bw/d	0.031
PROC6 - Calendaring operations	Worker - combined, long-term - systemic		0.081
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - dermal, long-term - systemic	3.43 mg/kg bw/d	< 0.01
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - combined, long-term - systemic		0.054

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Water treatment chemicals
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)
 PROC13 - Treatment of articles by dipping and pouring
Product category(ies) PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents
Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount per site
Value	<= 1000
Units	kg/d

Type	Annual site tonnage
Value	<= 100
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	2.5%
Release fraction to wastewater from process (initial release prior to RMM)	2%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid

Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25

and/or significant contact)			
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.141
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15

PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Water treatment chemicals
Type Worker
Main user group Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies) ERC7 - Industrial use of substances in closed systems
Process category(ies) PROC1 - Use in closed process, no likelihood of exposure
 PROC2 - Use in closed, continuous process with occasional controlled exposure
 PROC3 - Use in closed batch process (synthesis or formulation)
 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
 PROC13 - Treatment of articles by dipping and pouring
Product category(ies) PC37 - Water treatment chemicals
Sector(s) of use SU0 - Other 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) - ERC7 - Industrial use of substances in closed systems

Amounts used

Type	Daily amount per site
Value	<= 5000
Units	kg/d

Type	Annual site tonnage
Value	<= 100
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	5%
Release fraction to wastewater from process (initial release prior to RMM)	5%

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment	>= 2000 m3/d
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plant flow	
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide a basic standard of general ventilation (1 to 3 air changes per hour)

control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

Predicted No Effect Concentration (PNEC)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127

exposure			
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Water treatment chemicals
Type Worker
Main user group Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Process category(ies) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC13 - Treatment of articles by dipping and pouring
Product category(ies) PC37 - Water treatment chemicals
Sector(s) of use SU0 - Other 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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 0.0055
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor

Assumes process temperature up to	<= 40°C
Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC5 - Mixing or blending in batch processes for formulation of	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01

preparations and articles (multi-stage and/or significant contact)			
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.31
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	37.56 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	150.2 mg/m ³	0.15
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.084
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	75.12 mg/m ³	0.15
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	300.5 mg/m ³	0.301
PROC13 - Treatment of articles by dipping and pouring	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC13 - Treatment of articles by dipping and pouring	Worker - combined, long-term - systemic		0.16

Section 4 - Guidance to check compliance with the exposure scenario

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

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Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
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 Mining chemicals
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)
 PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
 PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
 PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Product category(ies) PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents
Sector(s) of use SU2a - Mining (without offshore industries) 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

Amounts used

Type	Daily amount per site
Value	<= 50000
Units	kg/d

Type	Annual site tonnage
Value	<= 5000
Units	t(ons)/year

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
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Release fraction to wastewater from process (initial release prior to RMM)	100%
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Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant flow	>= 2000 m3/d
Removal efficiency (total)	87.37%
Sludge treatment	Controlled application to agricultural soil

Environmental factors not influenced by risk management

Remarks	Receiving surface water flow >= 18000 m3/d
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Risk management measures

Additional good practice advice beyond the REACH Chemical Safety Report	See section 8 of the safety data sheet (environmental exposure controls)
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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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to
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	vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95% Handle in a fume cupboard For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90 - 95% Ensure fixed capturing hood is used For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Supervision in place to check that the RMMs in place are being used correctly and OCs followed Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

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)

Calculation method

Used EUSES model

Remarks

Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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 - inhalative, long-term - systemic	0.025 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.1 mg/m ³	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - dermal, long-term - systemic	0.034 mg/kg bw/d	< 0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - combined, long-term - systemic		< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic		0.127
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	125.2 mg/m ³	0.25
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	500.8 mg/m ³	0.501
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.69 mg/kg bw/d	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic		0.251
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05

PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic		0.058
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	62.60 mg/m ³	0.125
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	250.4 mg/m ³	0.25
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - combined, long-term - systemic		0.141
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - systemic	18.78 mg/m ³	0.038
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - systemic	75.12 mg/m ³	0.075
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	0.015
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic		0.053
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - systemic	50.08 mg/m ³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - systemic	200.3 mg/m ³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic		0.108
PROC5 - Mixing or blending in batch processes for formulation of	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301

preparations and articles (multi-stage and/or significant contact)			
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	8.226 mg/kg bw/d	< 0.01
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic		0.31

Section 4 - Guidance to check compliance with the exposure scenario

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

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

Chemical name PROPAN-2-OL
Pure substance/mixture Substance
REACH registration number 01-2119457558-25-XXXX
CAS No 67-63-0
EC No (EU Index No) 200-661-7
Supplier Univar Solutions UK Ltd
 Aquarius House
 6 Mid Point Business Park
 Bradford
 GBR

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

E-mail address SDS.EMEA@univarsolutions.com

Section 1 - Title

Title Use in laboratories
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) PROC10 - Roller application or brushing
 PROC15 - Use as laboratory reagent
 PROC19 - Hand-mixing with intimate contact and only PPE available
Product category(ies) PC21 - Laboratory chemicals
Sector(s) of use SU22 - Professional uses SU24 - Scientific research and development

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

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

Amounts used

Type	Daily amount for wide dispersive uses
Value	<= 5.5E-06
Units	kg/d

Other operational conditions of use affecting environmental exposure

Release fraction to air from process (initial release prior to RMM)	100%
Release fraction to wastewater from process (initial release prior to RMM)	100%

Conditions and measures related to municipal sewage treatment plant

Removal efficiency (total)	87.37%
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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)	PROC10 - Roller application or brushing
Covers concentrations up to	25%

Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	25%
Physical form of product	Liquid
Vapour pressure	15800 Pa (40°C)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80 - 90% Use receiving hood (where process-induced air movement occurs) For further specification, refer to section 8 of the SDS
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection See Section 8 for information on appropriate personal protective equipment
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented For further specification, refer to section 8 of the SDS
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<= 40°C

Section 3 - Exposure estimation

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

**Predicted No Effect Concentration
(PNEC)**

Calculation method Used EUSES model
Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	888 mg/kg/d
Worker - inhalative, long-term - systemic	500 mg/m ³
Worker - inhalative, short-term - systemic	1000 mg/m ³
Consumer - oral, long-term - systemic	26 mg/kg/d
Consumer - oral, short-term - systemic	51 mg/kg/d
Consumer - dermal, long-term - systemic	319 mg/kg/d
Consumer - inhalative, long-term - systemic	89 mg/m ³

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)
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC10 - Roller application or brushing	Worker - dermal, long-term - systemic	16.45 mg/kg bw/d	0.019
PROC10 - Roller application or brushing	Worker - combined, long-term - systemic		0.319
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - systemic	25.04 mg/m ³	0.05
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - systemic	100.1 mg/m ³	0.1
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic		0.05
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	150.2 mg/m ³	0.301
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	601 mg/m ³	0.601
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	84.85 mg/kg bw/d	0.096
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic		0.396

Section 4 - Guidance to check compliance with the exposure scenario

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