



SAFETY DATA SHEET CAFLON SI-HYBRID 50%

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

1.1. Product identifier

Product name CAFLON SI-HYBRID 50%

Product number 48635

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

Identified uses Coolant Antifreeze liquid.

1.3. Details of the supplier of the safety data sheet

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

1.4. Emergency telephone number

Emergency Contact Number SGS - +32 (0)3 575 55 55 (24h)
(Outside Office Hours)

Sds No. 48635

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

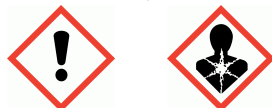
Physical hazards Not Classified

Health hazards Acute Tox. 4 - H302 STOT RE 2 - H373

Environmental hazards Not Classified

2.2. Label elements

Hazard pictograms



Signal word Warning

Hazard statements H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements P260 Do not breathe vapour/ spray.
P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
P501 Dispose of contents/ container in accordance with national regulations.

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Contains

ETHANEDIOL

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ETHANEDIOL			30-60%
CAS number: 107-21-1	EC number: 203-473-3	REACH registration number: 01-2119456816-28-XXXX	
Classification Acute Tox. 4 - H302 STOT RE 2 - H373			
2-ETHYLHEXANOIC ACID, SODIUM SALT			1-5%
CAS number: 19766-89-3	EC number: 243-283-8	REACH registration number: 01-2119488942-23-XXXX	
Classification Repr. 2 - H361d			
DISODIUM TETRABORATE PENTAHYDRATE			<1%
CAS number: 12179-04-3	EC number: 215-540-4	REACH registration number: 01-2119490790-32-XXXX	
Classification Eye Irrit. 2 - H319 Repr. 1B - H360FD			
METHANOL			<0.1%
CAS number: 67-56-1	EC number: 200-659-6	REACH registration number: 01-2119433307-44-XXXX	
Classification Flam. Liq. 2 - H225 Acute Tox. 3 - H301 Acute Tox. 3 - H311 Acute Tox. 3 - H331 STOT SE 1 - H370			

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Give plenty of water to drink. DO NOT induce vomiting. Get medical attention immediately.

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Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

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

Ingestion	Harmful if swallowed. Ingestion of large amounts may cause unconsciousness. Lethal dose to humans 100ml Causes damage to organs through prolonged or repeated exposure if swallowed.
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4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	If several ounces (60 - 100 ml) of ethylene glycol have been ingested, early administration of ethanol may counter the toxic effects (metabolic acidosis, renal damage). Consider hemodialysis or peritoneal dialysis & thiamine 100 mg plus pyridoxine 50 mg intravenously every 6 hours. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol: loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
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5.2. Special hazards arising from the substance or mixture

Hazardous combustion products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
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5.3. Advice for firefighters

Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of spray mist and contact with skin and eyes. Provide adequate ventilation.
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6.2. Environmental precautions

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Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with inert, damp, non-combustible material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Provide adequate ventilation. Avoid inhalation of vapours/spray and contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep separate from food, feedstuffs, fertilisers and other sensitive material.

7.3. Specific end use(s)

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

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

ETHANEDIOL

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

Sk

Long-term exposure limit (8-hour TWA): WEL 20 ppm 52 mg/m³ vapour

Short-term exposure limit (15-minute): WEL 40 ppm 104 mg/m³ vapour

Sk

DISODIUM TETRABORATE PENTAHYDRATE

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³

METHANOL

Long-term exposure limit (8-hour TWA): WEL 200 ppm 266 mg/m³

Short-term exposure limit (15-minute): WEL 250 ppm 333 mg/m³

Sk

WEL = Workplace Exposure Limit.

Sk = Can be absorbed through the skin.

ETHANEDIOL (CAS: 107-21-1)

Ingredient comments

WEL = Workplace Exposure Limits

DNEL

Industry - Inhalation; Short term : 35 mg/m³

Industry - Dermal; Long term : 106 mg/kg/day

Consumer - Dermal; Long term : 53 mg/kg/day

Consumer - Inhalation; Long term : 7 mg/m³

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PNEC	- Fresh water; 10 mg/l
	- marine water; 1 mg/l
	- Soil; 1.53 mg/kg
	- STP; 199.5 mg/l
	- Sediment (Freshwater); 37 mg/kg
	- Sediment (Marinewater); 3.7 mg/kg
	- Intermittent release; 10 mg/l

DISODIUM TETRABORATE PENTAHYDRATE (CAS: 12179-04-3)

DNEL	Workers - Inhalation; Long term systemic effects: 6,7 mg/m ³
	Workers - Dermal; Long term systemic effects: 316.4 mg/kg/day
	General population - Oral; Short term systemic effects: 0.79 mg/kg/day
	General population - Oral; Long term systemic effects: 0.79 mg/kg/day
	General population - Dermal; Long term systemic effects: 159.5 mg/kg/day
	General population - Inhalation; Long term systemic effects: 3.4 mg/m ³
PNEC	Fresh water; 2.9 mg B/L
	marine water; 2.9 mg B/L
	Water, Intermittent release; 13.7 mg B/L
	Soil; 5.7 mg B/L
	STP; 10 mg B/L

SODIUM METASILICATE PENTAHYDRATE (CAS: 10213-79-3)

DNEL	Workers - Dermal; Long term : 1.49 mg/kg/day
	Workers - Inhalation; Long term : 6.22 mg/m ³
	Consumer - Dermal; Long term : 0.74 mg/kg/day
	Consumer - Inhalation; Long term : 1.55 mg/m ³
	Consumer - Oral; Long term : 0.74 mg/kg/day
PNEC	- Fresh water; 7.5 mg/l
	- marine water; 1 mg/l
	- Water, Intermittent release; 7.5 mg/l
	- STP; 1000 mg/l

METHYL 1H BENZOTRIAZOLE (CAS: 29385-43-1)

DNEL	Workers - Dermal; Long term systemic effects: 0.5 mg/kg/day
	Workers - Inhalation; Long term systemic effects: 8.8 mg/m ³
	Consumer - Oral; Short term systemic effects: 0.25 mg/kg/day
	Consumer - Oral; Long term systemic effects: 0.25 mg/kg/day
	Consumer - Dermal; Long term systemic effects: 0.25 mg/kg/day
	Consumer - Inhalation; Long term systemic effects: 4.4 mg/m ³
PNEC	- Fresh water; 0.008 mg/l
	- marine water; 0.008 mg/l
	- Intermittent release; 0.086 mg/l
	- Sediment (Freshwater); 0.0025 mg/kg/day
	- Sediment (Marinewater); 0.0025 mg/kg/day
	- Soil; 0.0024 mg/kg/day
	- STP; 39.4 mg/l

WATER (CAS: 7732-18-5)

Ingredient comments	No exposure limits known for ingredient(s).
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ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER (CAS: 9003-11-6)

Ingredient comments No exposure limits known for ingredient(s).

DENATONIUM BENZOATE (CAS: 3734-33-6)

Ingredient comments No exposure limits known for ingredient(s).

METHANOL (CAS: 67-56-1)

DNEL	Workers - Inhalation; Long term systemic effects: 130 mg/m³ Workers - Inhalation; Short term systemic effects: 130 mg/m³ Workers - Inhalation; Long term local effects: 130 mg/m³ Workers - Inhalation; Short term local effects: 130 mg/m³ Workers - Dermal; Long term systemic effects: 20 mg/m³ Workers - Dermal; Long term systemic effects: 20 mg/kg/day General population - Inhalation; Long term systemic effects: 26 mg/m³ General population - Inhalation; Short term systemic effects: 26 mg/m³ General population - Inhalation; Long term local effects: 26 mg/m³ General population - Inhalation; Short term local effects: 26 mg/m³ General population - Dermal; Long term systemic effects: 5 mg/kg/day General population - Dermal; Short term systemic effects: 5 mg/kg/day General population - Oral; Long term systemic effects: 5 mg/kg/day General population - Oral; Short term systemic effects: 5 mg/kg/day
DMEL	Workers - Dermal; Long term systemic effects: 40 mg/kg/day
PNEC	- Fresh water; 20.8 mg/l - marine water; 2.08 mg/l - Intermittent release; 1540 mg/l - STP; 100 mg/l - Sediment (Freshwater); 77 mg/kg - Sediment (Marinewater); 7.7 mg/kg - Soil; 100 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapour or mist.

Eye/face protection

Chemical splash goggles. EN 166

Hand protection

It is recommended that chemical-resistant, impervious gloves are worn. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Polyvinyl chloride (PVC). Neoprene. Nitrile rubber. EN 374

Other skin and body protection

Wear suitable protective clothing as protection against splashing or contamination.

Hygiene measures

Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet.

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Respiratory protection If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Gas filter, type A2. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Blue-green.
Odour	No data available.
Odour threshold	Data lacking.
pH	pH (diluted solution): 7.5 - 8.5 @ 50%
Flash point	Data lacking.
Evaporation rate	Data lacking.
Upper/lower flammability or explosive limits	Data lacking.
Vapour pressure	Data lacking.
Vapour density	Data lacking.
Relative density	1.075 - 1.055 @ 20°C
Solubility(ies)	Soluble in water.
Partition coefficient	Not available.
Auto-ignition temperature	Data lacking.
Decomposition Temperature	Data lacking.
Viscosity	Data lacking.
Explosive properties	Data lacking.
Oxidising properties	Not available.

9.2. Other information

Other information	Not available.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Will not polymerise.
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10.4. Conditions to avoid

Conditions to avoid	Avoid excessive heat for prolonged periods of time.
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10.5. Incompatible materials

Materials to avoid	Strong oxidising agents. Strong acids. Strong alkalis.
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10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 1,080.38

Skin corrosion/irritation

Animal data Data lacking.

Serious eye damage/irritation

Serious eye damage/irritation Data lacking.

Skin sensitisation

Skin sensitisation Data lacking.

Germ cell mutagenicity

Genotoxicity - in vitro Data lacking.

Carcinogenicity

Carcinogenicity Data lacking.

Reproductive toxicity

Reproductive toxicity - fertility Data lacking.

Specific target organ toxicity - single exposure

STOT - single exposure Data lacking.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Data lacking.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion Harmful if swallowed. Lethal dose to humans 100ml Causes damage to organs through prolonged or repeated exposure if swallowed.

Skin contact Prolonged and frequent contact may cause redness and irritation.

Eye contact May cause temporary eye irritation.

Target organs Liver Kidneys

Toxicological information on ingredients.

ETHANEDIOL

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 1,600.0

Species Human

Notes (oral LD₅₀) Harmful if swallowed.
LD₅₀ 1600 mg/kg, Oral, Human

ATE oral (mg/kg) 1,600.0

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Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ 3,500.0 mg/kg)

Species Mouse

Notes (dermal LD₅₀) LD₅₀ 3500 mg/kg, Dermal, Mouse

ATE dermal (mg/kg) 3,500.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 2.5

Notes (inhalation LC₅₀) LD₅₀ > 2.5 mg/l, Inhalation, Rat

ATE inhalation (vapours mg/l) 2.5

Skin corrosion/irritation

Animal data Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Respiratory sensitisation

Respiratory sensitisation Not sensitising.

Skin sensitisation

Skin sensitisation Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vivo This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity There is no evidence that the product can cause cancer.

Reproductive toxicity

Reproductive toxicity - development Symptoms following overexposure may include the following: Possible risk of adverse reproductive effects.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure May cause damage to organs (Kidneys) through prolonged or repeated exposure if swallowed.

Target organs Kidneys

Aspiration hazard

Aspiration hazard No information available.

Inhalation Vapour may irritate respiratory system/lungs.

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Ingestion	Harmful if swallowed. Lethal dose to humans 100ml
Skin contact	Prolonged and frequent contact may cause redness and irritation.
Eye contact	May cause temporary eye irritation.
Acute and chronic health hazards	May cause damage to organs (Kidneys) through prolonged or repeated exposure if swallowed.
Target organs	Liver Kidneys

DISODIUM TETRABORATE PENTAHYDRATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 3,251.0

Species Rat

Notes (oral LD₅₀) LD₅₀ 3251 mg/kg, Oral, Rat

ATE oral (mg/kg) 3,251.0

Acute toxicity - dermal

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

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ gases ppmV) 2.12

Notes (inhalation LC₅₀) LC₅₀ (4d) >2 mg/l, Inhalation, Dust/Mist, Rat

Skin corrosion/irritation

Skin corrosion/irritation Not irritating. Rabbit

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation. Rabbit Fully reversible within 14 days.

Respiratory sensitisation

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

Skin sensitisation

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

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative. Read-across data. Boric acid

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

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met. Negative., Dose level: 446 - 1150 mg/kg/day, Boric acid, Oral, Mouse

Reproductive toxicity

Reproductive toxicity - fertility May damage fertility.
Fertility, Multi-generation study - NOAEL 17.5 mg B/kg , Oral, Rat, Male

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Reproductive toxicity - development May damage the unborn child.
Developmental toxicity: - NOAEL: 9.6 mg B/kg , Oral, Rat
Maternal toxicity: - NOAEL: 13.3 mg B/kg , Oral, Rat

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met. Chronic, NOAEL (2yr) 17.5 mg B/kg/day , Oral, Rat, Male reproductive organs

Aspiration hazard

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

Inhalation Dust in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Respiratory system irritation. Coughing.

Ingestion The product is considered to be a low hazard under normal conditions of use. No harmful effects expected from quantities likely to be ingested by accident. May cause discomfort if swallowed. Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea. Effects may be delayed. Skin irritation. Redness. Dryness and/or cracking.

Skin contact Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea. Effects may be delayed. Skin irritation. Redness. Dryness and/or cracking.

Eye contact Causes serious eye irritation. Symptoms following overexposure may include the following: Irritation. Redness. Profuse watering of the eyes.

Acute and chronic health hazards May damage fertility. May damage the unborn child.

SODIUM METASILICATE PENTAHYDRATE

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 5000 mg/kg/day, Dermal, Rat

Skin corrosion/irritation

Skin corrosion/irritation Corrosive to skin.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Respiratory sensitisation

Respiratory sensitisation Not sensitising.

Skin sensitisation

Skin sensitisation Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Negative.

Carcinogenicity

Carcinogenicity There is no evidence that the product can cause cancer.

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Reproductive toxicity

Reproductive toxicity - fertility Fertility - NOAEL >159 mg/kg/day, , Rat

Reproductive toxicity - development Developmental toxicity: - NOAEL: >200 mg/kg/day, , Mouse

Specific target organ toxicity - single exposure

STOT - single exposure Irritating to respiratory system.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure NOAEL >227 mg/kg/day, Oral, Rat NOAEL 260 mg/kg/day, Oral, Mouse

Aspiration hazard

Aspiration hazard No information available.

Inhalation Dust may irritate the respiratory system.

Ingestion Corrosive. Small amounts may cause serious damage. May cause chemical burns in mouth, oesophagus and stomach.

Skin contact Causes severe burns.

Eye contact Contact with concentrated chemical may very rapidly cause severe eye damage, possibly loss of sight.

METHYL 1H BENZOTRIAZOLE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 720.0

Species Rat

ATE oral (mg/kg) 720.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 4,000.0

Species Rabbit

Skin corrosion/irritation

Animal data Not irritating. Rabbit

Serious eye damage/irritation

Serious eye damage/irritation May cause temporary eye irritation. Rabbit

Respiratory sensitisation

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

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

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Genotoxicity - in vitro Negative.

Genotoxicity - in vivo Negative.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility Fertility - NOAEL 200 mg/kg/day, Oral, Rat P Based on available data the classification criteria are not met.

Reproductive toxicity - development Developmental toxicity: - NOAEL: 200 mg/kg/day, Oral, Rat Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met. NOAEL 150 mg/kg/day, Oral, Rat

Aspiration hazard

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

Inhalation Dust in high concentrations may irritate the respiratory system.

Ingestion Harmful if swallowed.

Skin contact Powder may irritate skin.

Eye contact May cause temporary eye irritation.

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ > 5000 mg/kg, Oral, Rat Estimated value.

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 5000 mg/kg, Dermal, Rabbit Estimated value.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Not determined.

Skin corrosion/irritation

Animal data Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation May cause temporary eye irritation.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

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Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

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

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion May cause discomfort if swallowed.

Skin contact Prolonged skin contact may cause temporary irritation.

Eye contact May cause temporary eye irritation.

DENATONIUM BENZOATE**Acute toxicity - oral**

Acute toxicity oral (LD₅₀ mg/kg) 584.0

Species Rat

ATE oral (mg/kg) 584.0

Acute toxicity - dermal

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

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 200.0

Species Rat

ATE inhalation (vapours mg/l) 200.0

Skin corrosion/irritation

Extreme pH Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation.

Respiratory sensitisation

Respiratory sensitisation No specific test data are available.

CAFLON SI-HYBRID 50%**Skin sensitisation**

Skin sensitisation	No specific test data are available.
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Germ cell mutagenicity

Genotoxicity - in vitro	No specific test data are available.
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Carcinogenicity

Carcinogenicity	No specific test data are available.
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Reproductive toxicity

Reproductive toxicity - fertility	No specific test data are available.
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Specific target organ toxicity - single exposure

STOT - single exposure	May cause respiratory irritation.
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Specific target organ toxicity - repeated exposure

STOT - repeated exposure	No specific test data are available.
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Aspiration hazard

Aspiration hazard	Not available.
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Inhalation	May cause respiratory irritation.
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Ingestion	Harmful if swallowed.
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Skin contact	Irritating to skin.
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Eye contact	Irritating to eyes.
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METHANOL**Acute toxicity - oral**

ATE oral (mg/kg)	100.0
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Acute toxicity - dermal

ATE dermal (mg/kg)	300.0
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Acute toxicity - inhalation

Acute toxicity inhalation (LC ₅₀ gases ppmV)	700.0
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Species	Rat
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Acute toxicity inhalation (LC ₅₀ vapours mg/l)	3.0
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Species	Rat
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Acute toxicity inhalation (LC ₅₀ dust/mist mg/l)	0.6
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Species	Rat
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ATE inhalation (gases ppm)	700.0
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**ATE inhalation (vapours
mg/l)** 3.0

**ATE inhalation
(dusts/mists mg/l)** 0.6

Skin corrosion/irritation

Skin corrosion/irritation Not irritating. Rabbit

Serious eye damage/irritation

**Serious eye
damage/irritation** Not irritating. Rabbit

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

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

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative. Gene mutation: Negative.

Genotoxicity - in vivo DNA damage and/or repair: Negative. Mouse

Carcinogenicity

Carcinogenicity NOAEL 466 mg/kg/day, Oral, Rat

Reproductive toxicity

**Reproductive toxicity -
fertility** No information available.

**Reproductive toxicity -
development** Embryotoxicity: - : , Oral, Mouse Negative. Fetotoxicity: - : , Oral, Mouse Positive.

Specific target organ toxicity - single exposure

STOT - single exposure STOT SE 1 - H370

Target organs Central nervous system Eyes

Specific target organ toxicity - repeated exposure

STOT - repeated exposure LOAEL 2340 mg/kg, Oral, Monkey NOAEL 1.06 mg/l, Inhalation, Rat 90 days

Target organs Eyes Central nervous system

Aspiration hazard

Aspiration hazard No information available.

Inhalation Toxic by inhalation. Drowsiness, dizziness, disorientation, vertigo.

Ingestion Toxic if swallowed. May cause unconsciousness, blindness and possibly death.

Skin contact Toxic in contact with skin.

Eye contact May cause temporary eye irritation.

Target organs Kidneys Liver Heart & cardiovascular system

Medical considerations Liver and/or kidney damage.

CAFLON SI-HYBRID 50%**BIS(HYDROXYSILYLPROPYL)METHYLPHOSPHONATE, SODIUM SALT****Acute toxicity - oral**

Notes (oral LD₅₀) LD₅₀ > 5000 mg/kg, Oral, Rat

Acute toxicity - dermal

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

Skin corrosion/irritation

Skin corrosion/irritation Causes mild skin irritation. Rabbit

Serious eye damage/irritation

Serious eye damage/irritation Irritating to eyes. Fully reversible within 7 days. Rabbit

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative.

SECTION 12: Ecological information

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.

Ecological information on ingredients.**ETHANEDIOL**

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.

DISODIUM TETRABORATE PENTAHYDRATE

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

SODIUM METASILICATE PENTAHYDRATE

Ecotoxicity The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

METHYL 1H BENZOTRIAZOLE

Ecotoxicity Toxic to aquatic life with long lasting effects.

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

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

DENATONIUM BENZOATE

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

METHANOL

CAFLON SI-HYBRID 50%

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.

12.1. Toxicity

Toxicity

No information available.

Ecological information on ingredients.

ETHANEDIOL

Toxicity

Not considered toxic to fish.

Acute aquatic toxicity

Acute toxicity - fish

LC₅₀, 96 hours: 72860 mg/l, Pimephales promelas (Fat-head Minnow)

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: > 100 mg/l, Daphnia magna

Acute toxicity - aquatic plants

EC₅₀, 96 hours: 6500 - 13000 mg/l,

Acute toxicity - microorganisms

EC₅₀, 30 minutes: 225 mg/l, Activated sludge

2-ETHYLHEXANOIC ACID, SODIUM SALT

Acute aquatic toxicity

Acute toxicity - fish

LC₅₀, 96 hours: > 100 mg/l, Oryzias latipes (Red killifish)
OECD 203

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: 910 mg/l, Daphnia magna
OECD 202

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates

NOEC, 21 days: 18 mg/l, Daphnia magna
OECD 211

DISODIUM TETRABORATE PENTAHYDRATE

Acute aquatic toxicity

Acute toxicity - fish

Acute, LC₅₀, : 79.7 mg/l, Pimephales promelas (Fat-head Minnow)
Read-across data.
Boron.
Chronic, NOEC, : 6.4 mg/l, Brachydanio rerio (Zebra Fish)
Read-across data.
Boron.

Acute toxicity - aquatic invertebrates

NOEC, : 14.2 mg/l, Daphnia magna
Read-across data.
Boron.
LC₅₀, : 91 mg/l,
Ceriodaphnia dubia
Read-across data.
Boron.

CAFLON SI-HYBRID 50%

Acute toxicity - aquatic plants

Acute, EC₅₀, : 52.4 mg/l, Pseudokirchneriella subcapitata
Read-across data.
Boron.
Chronic, NOEC, : 17.5 mg/l, Pseudokirchneriella subcapitata
Read-across data.
Boron.

SODIUM METASILICATE PENTAHYDRATE

Toxicity

Not considered toxic to fish.

Acute aquatic toxicity

Acute toxicity - fish

LC₅₀, 96 hours: 210 mg/l, Brachydanio rerio (Zebra Fish)

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: 1700 mg/l, Daphnia magna

Acute toxicity - aquatic plants

EC₅₀, 72 hours: 207 mg/l, Scenedesmus subspicatus

METHYL 1H BENZOTRIAZOLE

Toxicity

Toxic to aquatic life.

Acute aquatic toxicity

Acute toxicity - fish

LC₅₀, 96 hours: 55 mg/l, Cyprinodon variegatus (Sheepshead minnow)
NOEC, : 30 mg/l, Cyprinodon variegatus (Sheepshead minnow)
OECD 203

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: 55 mg/l, Daphnia magna
NOEC, 21 days: 0.4 mg/l, Daphnia magna
OECD 202

Acute toxicity - aquatic plants

EC₅₀, 72 hours: 53 mg/l, Freshwater algae
NOEC, 72 hours: 1.18 mg/l, Desmodesmus subspicatus
OECD 201

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates

NOEC, 21 days: 18.4 mg/l, Daphnia magna

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Toxicity

Not considered toxic to fish.

Acute aquatic toxicity

Acute toxicity - fish

LC₅₀, 96 hours: >100 mg/l, Poecilia reticulata (Guppy)
OECD 203

Acute toxicity - aquatic invertebrates

EC₅₀, 48 hours: > 100 mg/l, Daphnia magna
OECD 202

Acute toxicity - microorganisms

This information is based on test data from similar products
EC₅₀, 16 hours: > 10000 mg/l, Activated sludge
OECD 209

DENATONIUM BENZOATE

CAFLON SI-HYBRID 50%**Acute aquatic toxicity**

Acute toxicity - fish	LC ₅₀ , 96 hours: >1000 mg/l, Oncorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 13 mg/l, Daphnia magna

METHANOL**Acute aquatic toxicity**

Acute toxicity - fish	LC ₅₀ , 96 hours: 15400 mg/l, Lepomis macrochirus (Bluegill) NOEC, 200 hour: 15800 mg/l, Oryzias latipes (Red killifish) LC ₅₀ , 96 hour: > 100 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: > 10000 mg/l, Daphnia magna EC ₅₀ , 96 hour: 22200 - 23400 mg/l, Freshwater invertebrates Daphnia obtusa - Neonate EC ₅₀ , 48 hour: 2500 mg/l, Marinewater invertebrates Crangon Crangon (Common sand shrimp)
Acute toxicity - aquatic plants	EC ₅₀ , 96 hours: 22000 mg/l, Selenastrum capricornutum EC ₅₀ , 96 hour: 16.912 mg/l, Marinewater algae Ulva pertusa Chronic, NOEC, 96 hour: 9.96 mg/l, Marinewater algae Ulva pertusa
Acute toxicity - microorganisms	IC ₅₀ , 15 hour: 20000 mg/l, IC ₅₀ , 3 hour: > 1000 mg/l,

BIS(HYDROXYSILYLPROPYL)METHYLPHOSPHONATE, SODIUM SALT**Acute aquatic toxicity**

Acute toxicity - fish	LC ₅₀ , 96 hour: > 100 mg/l, Fish
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hour: > 100 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability Expected to be readily biodegradable.

Ecological information on ingredients.**ETHANEDIOL**

Persistence and degradability	The substance is readily biodegradable.
Biodegradation	- Degradation (%) 90%: > 10 days OECD 301A

DISODIUM TETRABORATE PENTAHYDRATE

Persistence and degradability	Not applicable. Substance is inorganic.
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SODIUM METASILICATE PENTAHYDRATE

Persistence and degradability	The product contains only inorganic substances which are not biodegradable.
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CAFLON SI-HYBRID 50%**METHYL 1H BENZOTRIAZOLE**

Persistence and degradability The product is not readily biodegradable.

Biodegradation Water - Degradation 4 %: 28 days

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Persistence and degradability The product is expected to be slowly biodegradable.

Biodegradation - Degradation 0%: 28 days
OECD 301F

DENATONIUM BENZOATE

Persistence and degradability The product is readily biodegradable.

Biodegradation - >97%:

METHANOL

Persistence and degradability The product is readily biodegradable.

Biodegradation Water - Degradation (%) 71.5: 5 days
Water - Degradation (%) 95: 20 days

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not available.

Ecological information on ingredients.**ETHANEDIOL**

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient log Kow: -1.36

DISODIUM TETRABORATE PENTAHYDRATE

Bioaccumulative potential Bioaccumulation is unlikely.

Partition coefficient log Pow: -0.757 to -1.53

SODIUM METASILICATE PENTAHYDRATE

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient No information available.

METHYL 1H BENZOTRIAZOLE

Bioaccumulative potential The product contains potentially bioaccumulating substances. BCF: 2.4,

CAFLON SI-HYBRID 50%

Partition coefficient log Pow: 1.08

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

Partition coefficient No information available.

DENATONIUM BENZOATE

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient No information available.

METHANOL

Bioaccumulative potential The product is not bioaccumulating. BCF: < 10, Leuciscus idus (Golden orfe)

Partition coefficient log Pow: -0.82 / -0.66

12.4. Mobility in soil

Mobility The product is soluble in water.

Ecological information on ingredients.**ETHANEDIOL**

Mobility The product is soluble in water.

Adsorption/desorption coefficient Water - Koc: 1 @ °C

DISODIUM TETRABORATE PENTAHYDRATE

Mobility The product is soluble in water.

SODIUM METASILICATE PENTAHYDRATE

Mobility The product is soluble in water.

METHYL 1H BENZOTRIAZOLE

Mobility Slightly soluble in water.

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Mobility The product is soluble in water.

DENATONIUM BENZOATE

Mobility The product is soluble in water.

METHANOL

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

CAFLON SI-HYBRID 50%

Results of PBT and vPvB assessment

This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

ETHANEDIOL

Results of PBT and vPvB assessment

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

2-ETHYLHEXANOIC ACID, SODIUM SALT

Results of PBT and vPvB assessment

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

DISODIUM TETRABORATE PENTAHYDRATE

Results of PBT and vPvB assessment

Not applicable. Substance is inorganic.

SODIUM METASILICATE PENTAHYDRATE

Results of PBT and vPvB assessment

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

METHYL 1H BENZOTRIAZOLE

Results of PBT and vPvB assessment

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

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Results of PBT and vPvB assessment

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

DENATONIUM BENZOATE

Results of PBT and vPvB assessment

No information available.

METHANOL

Results of PBT and vPvB assessment

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

12.6. Other adverse effects

Other adverse effects

None known.

Ecological information on ingredients.

ETHANEDIOL

Cod

1.22

Other adverse effects

None known.

DISODIUM TETRABORATE PENTAHYDRATE

CAFLON SI-HYBRID 50%

Other adverse effects None known.

SODIUM METASILICATE PENTAHYDRATE

Other adverse effects No information required.

METHYL 1H BENZOTRIAZOLE

Other adverse effects Not determined.

ETHYLENE OXIDE AND PROPYLENE OXIDE COPOLYMER

Other adverse effects No data recorded.

DENATONIUM BENZOATE

Other adverse effects No information available.

METHANOL

Cod 1.42

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.

Disposal methods Dispose of waste and residues in accordance with local authority requirements.

SECTION 14: Transport information

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

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

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

CAFLON SI-HYBRID 50%

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

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

National regulations	EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 453/2010 of 20 May 2010.

15.2. Chemical safety assessment

Not applicable.

SECTION 16: Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	12/05/2016
Version number	1.000
SDS number	48635
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapour. H301 Toxic if swallowed. H302 Harmful if swallowed. H311 Toxic in contact with skin. H319 Causes serious eye irritation. H331 Toxic if inhaled. H360FD May damage fertility. May damage the unborn child. H361d Suspected of damaging the unborn child. H370 Causes damage to organs . H373 May cause damage to organs through prolonged or repeated exposure. H373 May cause damage to organs (Kidneys) through prolonged or repeated exposure if swallowed.
Signature	Jitendra Panchal



Exposure scenario Use as Intermediate

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as Intermediate
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6a Use of intermediate
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Use as Intermediate

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.00002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Use as Intermediate

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC5 Mixing or blending in batch processes
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use as Process chemical

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as Process chemical
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
------------------	--

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

Use as Process chemical

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.00001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Use as Process chemical

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Distribution of substance

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Distribution of substance
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC1 Manufacture of the substance
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Distribution of substance

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 6667 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.000001

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 0.00001

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Distribution of substance

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
------------------------------	--

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
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4. Guidance to check compliance with the exposure scenario (Health 1)

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Formulation & (re)packing of substances and mixtures

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation & (re)packing of substances and mixtures
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Formulation & (re)packing of substances and mixtures

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 100000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.005
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.005
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Formulation & (re)packing of substances and mixtures

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Production of polymers

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production of polymers
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Production of polymers

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Production of polymers

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

PROC5 Mixing or blending in batch processes

PROC6 Calendering operations.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use in Paints/Coatings (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Paints/Coatings (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Use in Paints/Coatings (industrial)

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 39945 kg

Frequency and duration of use

Emission days: 220 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.98
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.02
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Wet scrubber for elimination of volatile components from waste gases.
Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Use in Paints/Coatings (industrial)

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Main sector SU22 Professional uses

Environment

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

Worker

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm². PROC19 Manual activities involving hand contact Both hands and main part of the arms. Covers skin contact area up to 1980 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Technical protective measures PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC10 Roller application or brushing Local exhaust ventilation - efficiency of at least [%]: 80

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC10 Roller application or brushing
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 80
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC13 Treatment of articles by dipping and pouring.
PROC19 Manual activities involving hand contact
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC11 Non industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 80%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%

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

Product characteristics

Physical state Liquid
Vapour pressure Vapour pressure < 0.5 kPa at STP.
Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.98
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.02
Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Technical measures Wet scrubbing with discharge to biological treatment Filtration. Provide onsite wastewater removal efficiency of 87%.

3. Exposure estimation (Environment 1)

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use in Cleaning Agents (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Cleaning Agents (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Use in Cleaning Agents (industrial)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50 kg

Frequency and duration of use

Emission days: 220 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 1

Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Use in Cleaning Agents (industrial)

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Cleaning agents (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Cleaning agents (professional)
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
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Use in Cleaning agents (professional)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC11 Non industrial spraying Whole body.

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 80

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

PROC11 Non industrial spraying

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 80%

Wear suitable coveralls to prevent exposure to the skin.

Efficiency of at least 80%

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 1580 kg

Use in Cleaning agents (professional)

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Provide onsite wastewater removal efficiency of 87%.
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use in lubricants (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in lubricants (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic energy conditions
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Use in lubricants (industrial)

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5000 kg

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.0003
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic energy conditions Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Use in lubricants (industrial)

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90
PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic energy conditions Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC17 Lubrication at high energy conditions in metal working operations
PROC18 General greasing/lubrication at high kinetic energy conditions
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%
PROC17 Lubrication at high energy conditions in metal working operations
PROC18 General greasing/lubrication at high kinetic energy conditions
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario
Production of rigid foam (consumer use)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production of rigid foam (consumer use)
Product category	PC32 Polymer preparations and compounds.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8f Widespread use leading to inclusion into/onto article (outdoor)
<u>Worker</u>	
Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

2. Conditions of use affecting exposure (Non-industrial - Environment 1)Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 5 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Production of rigid foam (consumer use)

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.15
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.005

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 30 %. Unless otherwise stated.

Frequency and duration of use

Application duration: 30 minutes
For each use event, covers use amounts up to 0.2 litre.

Human factors not influenced by risk management

Potentially exposed body parts	Covers skin contact area up to 1900 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Room size	Covers use in room size of 57.5 m ³ .
Ventilation rate	Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Exposure route	Inhalation
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3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

Assessment method	The Consexpo model has been used to estimate consumer exposures, unless otherwise indicated.
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Production of rigid foam (consumer use)

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario
Use in Heat Transfer and Hydraulic Fluids (consumer use)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Heat Transfer and Hydraulic Fluids (consumer use)
Product category	PC16 Heat transfer fluids. PC17 Hydraulic fluids.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
<u>Worker</u>	
Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

2. Conditions of use affecting exposure (Non-industrial - Environment 1)Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 30 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Use in Heat Transfer and Hydraulic Fluids (consumer use)

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.05
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.05
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 30 %. Unless otherwise stated.

Frequency and duration of use

Application duration: 15 minutes

Human factors not influenced by risk management

Potentially exposed body parts	Both hands. Covers skin contact area up to 960 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Exposure route	Inhalation
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3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

Assessment method	The Consexpo model has been used to estimate consumer exposures, unless otherwise indicated. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities ECETOC TRA v2.0 Worker
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Use in Heat Transfer and Hydraulic Fluids (consumer use)

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Paints/Coatings/Surface treatment products (consumer use)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Paints/Coatings/Surface treatment products (consumer use)
Product category	PC9a Coatings and paints, thinners, paint removers. PC15 Non-metal-surface treatment products. PC18 Ink and toners. PC23 Leather treatment products PC31 Polishes and wax blends. PC34 Textile dyes and impregnating products
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Risk management measures

Technical measures	No specific risk management measure identified beyond those operational conditions stated.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Use in Paints/Coatings/Surface treatment products (consumer use)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 25 %. Unless otherwise stated.

Human factors not influenced by risk management

Potentially exposed body parts	PC9a Coatings and paints, thinners, paint removers. PC15 Non-metal-surface treatment products. PC23 Leather treatment products PC34 Textile dyes and impregnating products Hands and forearms. Covers skin contact area up to 1900 cm ² . PC18 Ink and toners. Palm of one hand. Covers skin contact area up to 215 cm ² . PC31 Polishes and wax blends. Palm of both hands. Covers skin contact area up to 430 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Exposure route	Inhalation
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The Consexpo model has been used to estimate consumer exposures, unless otherwise indicated.
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90 PROC7 Industrial spraying Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

PROC5 Mixing or blending in batch processes

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

PROC7 Industrial spraying

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 90%

Wear suitable coveralls to prevent exposure to the skin.

Efficiency of at least 90%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in water-treatment chemicals (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in water-treatment chemicals (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC3 Formulation into solid matrix
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.

Use in water-treatment chemicals (industrial)

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 100 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.05

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.95

Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

Use in water-treatment chemicals (industrial)

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in laboratories (industrial and professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in laboratories (industrial and professional)
Main sector	SU3 Industrial uses SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Use in laboratories (industrial and professional)

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.5
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.5
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Provide onsite wastewater removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hand. Covers skin contact area up to 240 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Use suitable eye protection.

3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in/as functional fluids (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in/as functional fluids (professional)
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC20 Use of functional fluids in small devices
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
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Use in/as functional fluids (professional)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC20 Use of functional fluids in small devices Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.05

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.05

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Use in/as functional fluids (professional)

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Technical measures Provide onsite wastewater removal efficiency of 87%.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in/as functional fluids (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in/as functional fluids (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Use in/as functional fluids (industrial)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 500 kg

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.001

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.001

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 80 PROC17 Lubrication at high energy conditions in metal working operations Local exhaust ventilation - efficiency of at least [%]: 90

Use in/as functional fluids (industrial)

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
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4. Guidance to check compliance with the exposure scenario (Health 1)

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in metal-working fluids (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in metal-working fluids (professional)
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations
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2. Conditions of use affecting exposure (Workers - Health 1)

Use in metal-working fluids (professional)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations Palm of both hands. Covers skin contact area up to 480 cm ² . PROC11 Non industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC17 Lubrication at high energy conditions in metal working operations Local exhaust ventilation - efficiency of at least [%]: 80
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Risk management measures

Use in metal-working fluids (professional)

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC17 Lubrication at high energy conditions in metal working operations

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 80

PROC5 Mixing or blending in batch processes

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

PROC11 Non industrial spraying

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 80%

Wear suitable coveralls to prevent exposure to the skin.

Efficiency of at least 80%

PROC17 Lubrication at high energy conditions in metal working operations

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 90%

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 1370 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.015
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.05
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Provide onsite wastewater removal efficiency of 87%.
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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Use in metal-working fluids (professional)

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in metal-working fluids (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in metal-working fluids (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations
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Use in metal-working fluids (industrial)

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5000 kg

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.0003
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Use in metal-working fluids (industrial)

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 80
PROC17 Lubrication at high energy conditions in metal working operations Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC17 Lubrication at high energy conditions in metal working operations
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%
PROC17 Lubrication at high energy conditions in metal working operations
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Agrochemicals - Professional

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Agrochemicals - Professional
Process scope	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging, including equipment clean-downs and disposal.
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.

Use in Agrochemicals - Professional

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

Product characteristics

Physical state	Liquid
Vapour pressure	0.123 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Amounts used

PROC11 Non industrial spraying
Low application rate (0.03 - 0.3 l/minute)

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .
Unless otherwise stated.
PROC11 Non industrial spraying
Covers frequency up to 5 days/week, , .
Application duration: 180 minutes

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC11 Non industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Setting	Indoor.
Room size	PROC11 Non industrial spraying Use in room with a volume of minimum [m ³]: 100

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Provide extract ventilation to points where emissions occur. Local exhaust ventilation - efficiency of at least [%]: 80 PROC11 Non industrial spraying Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	PROC11 Non industrial spraying Regular cleaning of equipment. Regular cleaning of work area. Ensure that spray direction is only horizontal or downward. Ensure that the task is not carried out by more than one worker simultaneously.
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Risk management measures

Use in Agrochemicals - Professional

Use suitable eye protection.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Wear suitable gloves tested to EN374.

PROC11 Non industrial spraying

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation (Environment 1)

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

3. Exposure estimation (Health 1)

Assessment method

ECETOC TRA v2.0 Worker Unless otherwise stated.

PROC11 Non industrial spraying RISKOFDERM v2.1 Dermal

PROC11 Non industrial spraying Inhalation Stoffenmanager v4.0

Use in Agrochemicals - Professional

Exposure

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Worker - inhalation, long-term - local and systemic: Exposure 0.035 mg/m³, DNEL 35 mg/m³, RCR 0.001

Worker - dermal, long-term - systemic: Exposure 0.318 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.003

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Worker - inhalation, long-term - local and systemic: Exposure 12.95 mg/m³, DNEL 35 mg/m³, RCR 0.370

Worker - dermal, long-term - systemic: Exposure 0.16 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.010

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 6.36 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.060

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - local and systemic: Exposure 12.95 mg/m³, DNEL 35 mg/m³, RCR 0.370

Worker - dermal, long-term - systemic: Exposure 13.78 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.130

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

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 6.36 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.060

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 6.36 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.060

PROC11 Non industrial spraying

Worker - inhalation, long-term - local and systemic: Exposure 14 mg/m³, DNEL 35 mg/m³, RCR 0.400

Worker - dermal, long-term - systemic: Exposure 54.06 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.510

PROC13 Treatment of articles by dipping and pouring.

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 0.16 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.010

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. 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.



Exposure scenario

Use in oil and gas field drilling - Industrial

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in oil and gas field drilling - Industrial
Process scope	Oil field well drilling and production operations (including drilling muds and well cleaning), including material transfers, onsite formulation, well head operations, shaker room activities and related maintenance.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC7 Use of functional fluid at industrial site
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

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

Product characteristics

Physical state	Liquid
Vapour pressure	0.123 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Use in oil and gas field drilling - Industrial

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

Covers frequency up to 240 days/year, , .

Other given operational conditions affecting workers exposure

Setting	Outdoor.
Ventilation rate	Covers outdoor use.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures No specific risk management measure identified beyond those operational conditions stated.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. No specific measures identified.

Risk management measures

Use suitable eye protection and gloves.

Use suitable respiratory protection if ventilation is inadequate.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method	EASY TRA v2.0
Exposure	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Worker - inhalation, long-term - local and systemic: Exposure 1.82 mg/m³, DNEL 35 mg/m³, RCR 0.052 Worker - dermal, long-term - systemic: Exposure 1.38 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.013 PROC5 Mixing or blending in batch processes Worker - inhalation, long-term - local and systemic: Exposure 9.03 mg/m³, DNEL 35 mg/m³, RCR 0.258 Worker - dermal, long-term - systemic: Exposure 13.67 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.129 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Worker - inhalation, long-term - local and systemic: Exposure 18.1 mg/m³, DNEL 35 mg/m³, RCR 0.517 Worker - dermal, long-term - systemic: Exposure 13.67 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.129

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic industrial use of borates resulting in the manufacture of another substance

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic industrial use of borates resulting in the manufacture of another substance
Product category	PC7 Base metals and alloys. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC24 Lubricants, greases and release products. PC25 Metal working fluids.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC6a Use of intermediate ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 190 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.036562
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.06000

Environmental exposure scenario for generic industrial use of borates resulting in the manufacture of another substance

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 1150 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.06000

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1956 µg/l, PNEC 2020 µg/l, RCR 0.969
Soil: Exposure 0.86 mg/kg, PNEC 5.4 mg/kg, RCR 0.158

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1206 µg/l, PNEC 2020 µg/l, RCR 0.597
Soil: Exposure 5.15 mg/kg, PNEC 5.4 mg/kg, RCR 0.954

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

Environmental exposure scenario for generic industrial use of borates resulting in the manufacture of another substance

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for importing, manufacturing, refining and packaging of borates

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for importing, manufacturing, refining and packaging of borates
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC6a Use of intermediate
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid
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Amounts used

Annual amount used in the EU: 100000 tonnes

Frequency and duration of use

Emission days: 220 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.00000053
Emission factor - water	Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution	No discharge of substance into waste water.
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
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Environmental exposure scenario for importing, manufacturing, refining and packaging of borates

STP type No STP.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water No discharge of substance into waste water.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid

Amounts used

Annual amount used in the EU: 55000 tonnes

Frequency and duration of use

Emission days: 220 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.00000053

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.000554

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 37

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

STP type No STP.

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water No wastewater treatment required.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 0.01 mg/kg, PNEC 5.4 mg/kg, RCR 0.002

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1872 µg/l, PNEC 2020 µg/l, RCR 0.954
Soil: Exposure 0.01 mg/kg, PNEC 5.4 mg/kg, RCR 0.002

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

Environmental exposure scenario for importing, manufacturing, refining and packaging of borates

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic formulation of borates into materials

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic formulation of borates into materials
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC3 Formulation into solid matrix
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 1150 tonnes

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.036562
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.002

Environmental factors not influenced by risk management measures

Dilution	No discharge of substance into waste water.
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for generic formulation of borates into materials

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1206 µg/l, PNEC 2020 µg/l, RCR 0.597
Soil: Exposure 5.15 mg/kg, PNEC 5.4 mg/kg, RCR 0.954

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic industrial use of borates as processing aids in processes and products

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic industrial use of borates as processing aids in processes and products
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture

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

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 14 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.036562
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Environmental exposure scenario for generic industrial use of borates as processing aids in processes and products

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 140 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 1

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 3)

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 1150 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 1

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 1000

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Environmental exposure scenario for generic industrial use of borates as processing aids in processes and products

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 4)

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 50 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 1

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 35

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1974 µg/l, PNEC 2020 µg/l, RCR 0.977
Soil: Exposure 0.07 mg/kg, PNEC 5.4 mg/kg, RCR 0.013

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1974 µg/l, PNEC 2020 µg/l, RCR 0.977
Soil: Exposure 0.63 mg/kg, PNEC 5.4 mg/kg, RCR 0.117

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 3)

Environmental exposure scenario for generic industrial use of borates as processing aids in processes and products

Environmental exposure Fresh water: Exposure 1575 µg/l, PNEC 2020 µg/l, RCR 0.808
Soil: Exposure 5.15 mg/kg, PNEC 5.4 mg/kg, RCR 0.954

4. Guidance to check compliance with the exposure scenario (Environment 3)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 4)

Environmental exposure Fresh water: Exposure 1974 µg/l, PNEC 2020 µg/l, RCR 0.977
Soil: Exposure 0.23 mg/kg, PNEC 5.4 mg/kg, RCR 0.043

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic wide dispersive use of articles containing borates with high release

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic wide dispersive use of articles containing borates with high release
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC10b Widespread use of articles with high or intended release (outdoor) ERC11b Widespread use of articles with high or intended release (indoor)

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

Product characteristics

Physical state	Product applied to a substrate to form a solid matrix.
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Amounts used

Annual amount used in the EU: 35000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Not applicable for wide dispersive uses.
Emission factor - water	Release fraction to wastewater from wide dispersive use: 1

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for generic wide dispersive use of articles containing borates with high release

Disposal method Not applicable for wide dispersive uses.

3. Exposure estimation (Environment 1)

Environmental exposure STP: Exposure 9589 µg/l, PNEC 10000 µg/l, RCR 0.959
Fresh water: Exposure 1015 µg/l, PNEC 2020 µg/l, RCR 0.503

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for formulation of borates into adhesives

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for formulation of borates into adhesives
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 1000 tonnes

Frequency and duration of use

Emission days: 240 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.00005
Emission factor - water	Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution	No discharge of substance into waste water.
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for formulation of borates into adhesives

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 0.01 mg/kg, PNEC 5.4 mg/kg, RCR 0.002

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic wide dispersive use of articles containing borates with low release

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic wide dispersive use of articles containing borates with low release
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC10a Widespread use of articles with low release (outdoor) ERC11a Widespread use of articles with low release (indoor)

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

Product characteristics

Physical state	Product applied to a substrate to form a solid matrix.
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Amounts used

Annual amount used in the EU: 1100000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Not applicable for wide dispersive uses.
Emission factor - water	Release fraction to wastewater from wide dispersive use: 0.032

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for generic wide dispersive use of articles containing borates with low release

Disposal method Not applicable for wide dispersive uses.

3. Exposure estimation (Environment 1)

Environmental exposure STP: Exposure 9644 µg/l, PNEC 10000 µg/l, RCR 0.964
Fresh water: Exposure 1021 µg/l, PNEC 2020 µg/l, RCR 0.505

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic formulation of borate into mixtures

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic formulation of borate into mixtures
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 950 tonnes

Frequency and duration of use

Emission days: 200 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.0004
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.008

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for generic formulation of borate into mixtures

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 9500 tonnes

Frequency and duration of use

Emission days: 200 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.0004

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.008

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 3)

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 15000 tonnes

Frequency and duration of use

Emission days: 200 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.0004

Emission factor - water Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution No discharge of substance into waste water.

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for generic formulation of borate into mixtures

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1956 µg/l, PNEC 2020 µg/l, RCR 0.969
Soil: Exposure 0.05 mg/kg, PNEC 5.4 mg/kg, RCR 0.010

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1956 µg/l, PNEC 2020 µg/l, RCR 0.969
Soil: Exposure 0.47 mg/kg, PNEC 5.4 mg/kg, RCR 0.087

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 3)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 0.74 mg/kg, PNEC 5.4 mg/kg, RCR 0.137

4. Guidance to check compliance with the exposure scenario (Environment 3)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for wide dispersive use of fertilizers containing borates

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for wide dispersive use of fertilizers containing borates
Main sector	SU21 Consumer uses SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Covers concentrations up to 7.7 %.

Amounts used

Annual amount used in the EU: 35000 tonnes

Other given operational conditions affecting environmental exposure

Emission factor - air	Not applicable for wide dispersive uses.
Emission factor - water	Release fraction to wastewater from wide dispersive use: 1

Environmental factors not influenced by risk management measures

Dilution	Not applicable.
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Risk management measures

STP type	Not relevant.
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Environmental exposure scenario for wide dispersive use of fertilizers containing borates

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Soil Controlled application to agricultural soil.

Conditions and measures related to external treatment of waste for disposal

Disposal method Not applicable for wide dispersive uses.

3. Exposure estimation (Environment 1)

Environmental exposure The use is assessed to be safe.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic use of borates in laboratories as analytical reagent

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic use of borates in laboratories as analytical reagent
Main sector	SU3 Industrial uses SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)

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

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Small scale

Frequency and duration of use

Emission days: 365 days/year

Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely. Ensure operatives are trained to minimise exposures.
Technical measures	Prevent discharge of undissolved substance to or recover from onsite waste water.
STP type	Municipal STP.

Environmental exposure scenario for generic use of borates in laboratories as analytical reagent

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Qualitative approach used to conclude safe use.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates for autocausticizing

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates for autocausticizing
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

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

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 0.3 tonnes

Frequency and duration of use

Continuous release.

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.036562
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.5

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
STP type	No STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste.
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Environmental exposure scenario for industrial use of borates for autocausticizing

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 457 µg/l, PNEC 2020 µg/l, RCR 0.226
Soil
Qualitative approach used to conclude safe use.

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates in the production in the production of diboron trioxide containing catalysts

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates in the production in the production of diboron trioxide containing catalysts
Product category	PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental exposure scenario for industrial use of borates in the production in the production of diboron trioxide containing catalysts

Environmental release category	ERC1 Manufacture of the substance
	ERC6a Use of intermediate
	ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
	ERC3 Formulation into solid matrix

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 200 tonnes

Frequency and duration of use

Emission days: 330 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.0000027

Emission factor - water Not applicable.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely. Ensure operatives are trained to minimise exposures.

STP type Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal

Disposal method Incineration, disposal or recycling at specific offsite provider.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 0.01 mg/kg, PNEC 5.4 mg/kg, RCR 0.001

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic wide dispersive use of cellulose insulation

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic wide dispersive use of cellulose insulation
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Product applied to a substrate to form a solid matrix.
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Amounts used

Annual amount used in the EU: 3500000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Not applicable for wide dispersive uses.
Emission factor - water	Release fraction to wastewater from wide dispersive use: 0.01

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Disposal method	Not applicable for wide dispersive uses.
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Environmental exposure scenario for generic wide dispersive use of cellulose insulation

3. Exposure estimation (Environment 1)

Environmental exposure	STP: Exposure 9589 µg/l, PNEC 10000 µg/l, RCR 0.959
	Fresh water: Exposure 1015 µg/l, PNEC 2020 µg/l, RCR 0.503

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates during the manufacture of frits

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates during the manufacture of frits
Main sector	SU3 Industrial uses
Sector of use	SU13 Manufacture of other non-metallic mineral products
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate

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

Product characteristics

Physical state	Solid
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Amounts used

Annual amount used in the EU: 6200 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.005
Emission factor - water	Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution	No discharge of substance into waste water.
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.

Environmental exposure scenario for industrial use of borates during the manufacture of frits

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid

Amounts used

Annual amount used in the EU: 2750

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.006959

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.006959

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 5.29 mg/kg, PNEC 5.4 mg/kg, RCR 0.979

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1940 µg/l, PNEC 2020 µg/l, RCR 0.960
Soil: Exposure 2.35 mg/kg, PNEC 5.4 mg/kg, RCR 0.435

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for formulation of borates into paints and coatings

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for formulation of borates into paints and coatings
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 1000 tonnes

Frequency and duration of use

Emission days: 225 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.000097
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.005

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for formulation of borates into paints and coatings

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1168 µg/l, PNEC 2020 µg/l, RCR 0.578
Soil: Exposure 0.02 mg/kg, PNEC 5.4 mg/kg, RCR 0.003

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of paints and coatings containing borate compounds

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of paints and coatings containing borate compounds
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC5 Use at industrial site leading to inclusion into/onto article
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 1000 tonnes

Frequency and duration of use

Emission days: 225 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.02
Emission factor - water	Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
STP type	Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for industrial use of paints and coatings containing borate compounds

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 2.45 mg/kg, PNEC 5.4 mg/kg, RCR 0.454

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic wide dispersive use of paints and coatings containing borates

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic wide dispersive use of paints and coatings containing borates
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor)

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

Product characteristics

Physical state	Solid
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Amounts used

Annual amount used in the EU: 1750000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Not applicable for wide dispersive uses.
Emission factor - water	Release fraction to wastewater from wide dispersive use: 0.02

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for generic wide dispersive use of paints and coatings containing borates

Disposal method Not applicable for wide dispersive uses.

3. Exposure estimation (Environment 1)

Environmental exposure STP: Exposure 9589 µg/l, PNEC 10000 µg/l, RCR 0.959
Fresh water: Exposure 1015 µg/l, PNEC 2020 µg/l, RCR 0.503

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic industrial use of borates resulting in inclusion into or onto a matrix

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic industrial use of borates resulting in inclusion into or onto a matrix
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC5 Use at industrial site leading to inclusion into/onto article
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 7.5 tonnes

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.036562
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.5

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Environmental exposure scenario for generic industrial use of borates resulting in inclusion into or onto a matrix

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 75 tonnes

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.5

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 3)

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 750 tonnes

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.5

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 1000

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Environmental exposure scenario for generic industrial use of borates resulting in inclusion into or onto a matrix

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 4)

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 1150 tonnes

Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.036562

Emission factor - water Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution No discharge of substance into waste water.

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1931 µg/l, PNEC 2020 µg/l, RCR 0.956
Soil: Exposure 0.04 mg/kg, PNEC 5.4 mg/kg, RCR 0.007

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1931 µg/l, PNEC 2020 µg/l, RCR 0.9956
Soil: Exposure 0.34 mg/kg, PNEC 5.4 mg/kg, RCR 0.063

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 3)

Environmental exposure scenario for generic industrial use of borates resulting in inclusion into or onto a matrix

Environmental exposure Fresh water: Exposure 1931 µg/l, PNEC 2020 µg/l, RCR 0.956
Soil: Exposure 3.36 mg/kg, PNEC 5.4 mg/kg, RCR 0.622

4. Guidance to check compliance with the exposure scenario (Environment 3)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 4)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 5.15 mg/kg, PNEC 5.4 mg/kg, RCR 0.954

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic industrial processing of articles with low abrasive techniques

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic industrial processing of articles with low abrasive techniques
Article category	AC4 Stone, plaster, cement, glass and ceramic articles
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU19 Building and construction work

Environment

Environmental release category	ERC12a Processing of articles at industrial sites with low release
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual amount used in the EU: 30 tonnes

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.025
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.025

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
STP type	Municipal STP.

Environmental exposure scenario for generic industrial processing of articles with low abrasive techniques

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Amounts used

Annual amount used in the EU: 300 tonnes

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.025

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.025

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 3)

Amounts used

Annual amount used in the EU: 1700 tonnes

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.025

Emission factor - water Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution No discharge of substance into waste water.

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1932 µg/l, PNEC 2020 µg/l, RCR 0.956
Soil: Exposure 0.10 mg/kg, PNEC 5.4 mg/kg, RCR 0.018

Environmental exposure scenario for generic industrial processing of articles with low abrasive techniques

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1932 µg/l, PNEC 2020 µg/l, RCR 0.956
Soil: Exposure 0.92 mg/kg, PNEC 5.4 mg/kg, RCR 0.171

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 3)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 5.21 mg/kg, PNEC 5.4 mg/kg, RCR 0.964

4. Guidance to check compliance with the exposure scenario (Environment 3)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for formulation of borate into detergents

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for formulation of borate into detergents
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 2400 tonnes

Frequency and duration of use

Emission days: 255 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.0002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.004

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Formulation activity is assumed to be a predominantly enclosed process.
STP type	Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for formulation of borate into detergents

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 15000 tonnes

Frequency and duration of use

Emission days: 255 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.0002

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.004

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

2. Conditions of use affecting exposure (Industrial - Environment 3)

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 15000 tonnes

Frequency and duration of use

Emission days: 255 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.0002

Emission factor - water Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution No discharge of substance into waste water.

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Environmental exposure scenario for formulation of borate into detergents

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1939 µg/l, PNEC 2020 µg/l, RCR 0.960
Soil: Exposure 0.06 mg/kg, PNEC 5.4 mg/kg, RCR 0.012

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 1233 µg/l, PNEC 2020 µg/l, RCR 0.610
Soil: Exposure 0.37 mg/kg, PNEC 5.4 mg/kg, RCR 0.069

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 3)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 0.37 mg/kg, PNEC 5.4 mg/kg, RCR 0.069

4. Guidance to check compliance with the exposure scenario (Environment 3)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for generic wide dispersive use of borates with 100% release to water

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for generic wide dispersive use of borates with 100% release to water
Main sector	SU21 Consumer uses SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 35000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Not applicable for wide dispersive uses.
Emission factor - water	Release fraction to wastewater from wide dispersive use: 1

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

STP type	Municipal STP.
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Environmental exposure scenario for generic wide dispersive use of borates with 100% release to water

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Disposal method Not applicable for wide dispersive uses.

3. Exposure estimation (Environment 1)

Environmental exposure STP: Exposure 9589 µg/l, PNEC 10000 µg/l, RCR 0.959
Fresh water: Exposure 1015 µg/l, PNEC 2020 µg/l, RCR 0.503

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates during the manufacture of glass wool

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates during the manufacture of glass wool
Main sector	SU3 Industrial uses
Sector of use	SU13 Manufacture of other non-metallic mineral products
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate

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

Product characteristics

Physical state	Solid
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Amounts used

Annual amount used in the EU: 15000 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.002827
Emission factor - water	Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution	No discharge of substance into waste water.
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
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Environmental exposure scenario for industrial use of borates during the manufacture of glass wool

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 5.20 mg/kg, PNEC 5.4 mg/kg, RCR 0.962

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates in closed systems

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates in closed systems
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 275 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.05
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.05

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Handle substance within a closed system.

Environmental exposure scenario for industrial use of borates in closed systems

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

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

Product characteristics

Physical state Solid , or: Solid in solution

Amounts used

Annual amount used in the EU: 1150 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (after typical onsite RMMs): 0.0036562

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.0036562

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 100

Risk management measures

Good practice Clear up spills immediately and dispose of waste safely.

Technical measures Handle substance within a closed system.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1940 µg/l, PNEC 2020 µg/l, RCR 0.960
Soil: Exposure 1.24 mg/kg, PNEC 5.4 mg/kg, RCR 0.229

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. Exposure estimation (Environment 2)

Environmental exposure Fresh water: Exposure 844 µg/l, PNEC 2020 µg/l, RCR 0.418
Soil: Exposure 5.15 mg/kg, PNEC 5.4 mg/kg, RCR 0.954

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates in nuclear power plants with release to water

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates in nuclear power plants with release to water
Main sector	SU3 Industrial uses
Sector of use	SU23 Electricity, steam, gas, water supply and sewage treatment

Environment

Environmental release category	ERC2 Formulation into mixture ERC7 Use of functional fluid at industrial site
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 13000 tonnes

Frequency and duration of use

Emission days: 32 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Negligible air emissions as process operates in a contained system.
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.013

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 200
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Handle substance within a closed system.

Environmental exposure scenario for industrial use of borates in nuclear power plants with release to water

STP type No STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 1072 µg/l, PNEC 2020 µg/l, RCR 0.531
Soil: Exposure 0 mg/kg, PNEC 5.4 mg/kg, RCR 0

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates in nuclear power plants without release to water

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates in nuclear power plants without release to water
Main sector	SU3 Industrial uses
Sector of use	SU23 Electricity, steam, gas, water supply and sewage treatment
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC7 Use of functional fluid at industrial site

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

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Annual amount used in the EU: 15000 tonnes

Frequency and duration of use

Emission days: 75 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.0004
Emission factor - water	Not applicable as there is no release to wastewater.

Environmental factors not influenced by risk management measures

Dilution	Not applicable as there is no release to wastewater.
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
Technical measures	Handle substance within a closed system.

Environmental exposure scenario for industrial use of borates in nuclear power plants without release to water

STP type Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 0 µg/l, PNEC 2020 µg/l, RCR 0
Soil: Exposure 0.74 mg/kg, PNEC 5.4 mg/kg, RCR 0.137

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Occupational exposure scenario for refining and processing borates

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for refining and processing borates
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC14 Tableting, compression, extrusion, pelletisation, granulation
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid
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Frequency and duration of use

Continuous.

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities reflect a hot process.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Handle substance within a closed system. Provide extract ventilation to material transfer points and other openings.
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Organisational measures to prevent/limit releases, dispersion and exposure

Occupational exposure scenario for refining and processing borates

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Worker - inhalation: Exposure 0.01 mg/m³, DNEL 1.45 mg/m³, RCR 0.0069
Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for loading road tankers

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for loading road tankers
Product category	PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Worker

Occupational exposure scenario for loading road tankers

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

Product characteristics

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

Amounts used

Amount per use: 25 tonnes

Frequency and duration of use

Application duration: 30 minutes

Other given operational conditions affecting workers exposure

Setting	Outdoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Automated process with (semi) closed systems Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
 Use suitable eye protection.
 If above technical/organisational control measures are not feasible, then adopt following PPE:
 Wear a respirator conforming to EN140 with Type A/P2 filter or better.
 Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 0.37 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.26 Worker - dermal: Exposure 0.029 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for packaging into bags (25-50kg)

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for packaging into bags (25-50kg)
Product category	PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC37 Water treatment chemicals. PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Worker

Occupational exposure scenario for packaging into bags (25-50kg)

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
	PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

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

Product characteristics

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

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Automate activity where possible. Provide extract ventilation to points where emissions occur.
Dispose of empty containers and wastes safely.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.
Use suitable eye protection.
If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 1 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.69 Worker - dermal: Exposure 0.144 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for packaging into big bags

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for packaging into big bags
Product category	PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Worker

Occupational exposure scenario for packaging into big bags

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
	PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

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

Product characteristics

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

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Automate activity where possible. Provide extract ventilation to points where emissions occur.
Dispose of empty containers and wastes safely.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.
Use suitable eye protection.
If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 0.58 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.4 Worker - dermal: Exposure 0.144 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for general maintenance activities

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for general maintenance activities
Product category	PC0 Other products. PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses

Occupational exposure scenario for general maintenance activities

Sector of use	SU1 Agriculture, forestry, fishery
	SU2b Offshore industries
	SU5 Manufacture of textiles, leather, fur
	SU6a Manufacture of wood and wood products
	SU6b Manufacture of pulp, paper and paper products
	SU7 Printing and reproduction of recorded media
	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)
	SU9 Manufacture of fine chemicals
	SU10 Formulation [mixing] of preparations and/or re-packaging
	SU11 Manufacture of rubber products
	SU13 Manufacture of other non-metallic mineral products
	SU14 Manufacture of basic metals, including alloys
	SU15 Manufacture of fabricated metal products, except machinery and equipment
	SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
	SU19 Building and construction work

Worker

Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

Product characteristics

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

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor/outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Automate activity where possible. Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
 Use suitable eye protection.
 If above technical/organisational control measures are not feasible, then adopt following PPE:
 Wear a respirator conforming to EN140 with Type A/P2 filter or better.
 Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 1.33 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.92
	Worker - dermal: Exposure 0.173 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

Occupational exposure scenario for general maintenance activities

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for working in a laboratory

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for working in a laboratory
Product category	PC0 Other products. PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses SU22 Professional uses

Occupational exposure scenario for working in a laboratory

Sector of use	SU1 Agriculture, forestry, fishery
	SU2b Offshore industries
	SU6a Manufacture of wood and wood products
	SU6b Manufacture of pulp, paper and paper products
	SU7 Printing and reproduction of recorded media
	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)
	SU9 Manufacture of fine chemicals
	SU10 Formulation [mixing] of preparations and/or re-packaging
	SU11 Manufacture of rubber products
	SU13 Manufacture of other non-metallic mineral products
	SU14 Manufacture of basic metals, including alloys
	SU15 Manufacture of fabricated metal products, except machinery and equipment
	SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Process category	PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid, high dustiness
Concentration details	Covers concentrations up to 25 %.

Amounts used

Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
Use suitable eye protection.
Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Dermal MEASE Inhalation Workplace measurements
Exposure	Worker - inhalation: Exposure 0.16 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.11
	Worker - dermal: Exposure 0.014 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

Occupational exposure scenario for working in a laboratory

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for working in a warehouse

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for working in a warehouse
Product category	PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC12 Lawn and garden preparations (- fertilizers). PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC23 Leather treatment products PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC26 Paper and board treatment products PC29 Pharmaceuticals PC30 Photochemicals. PC32 Polymer preparations and compounds. PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals
<u>Worker</u>	
Process category	PROC0 Other process or activity.

Occupational exposure scenario for working in a warehouse

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

Product characteristics

Physical state Solid

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Handling of product in tightly-closed containers

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures.

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method Workplace measurements

Exposure Worker - inhalation: Exposure 0.3 mg/m³, DNEL 1.45 mg/m³, RCR 0.21
Dermal exposure is considered to be not relevant.

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for discharging bags (25-50kg) into mixing vessels

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for discharging bags (25-50kg) into mixing vessels
Product category	PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC12 Lawn and garden preparations (- fertilizers). PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC30 Photochemicals. PC32 Polymer preparations and compounds. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products
Main sector	SU3 Industrial uses

Occupational exposure scenario for discharging bags (25-50kg) into mixing vessels

Sector of use	SU1 Agriculture, forestry, fishery
	SU5 Manufacture of textiles, leather, fur
	SU6a Manufacture of wood and wood products
	SU6b Manufacture of pulp, paper and paper products
	SU7 Printing and reproduction of recorded media
	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)
	SU9 Manufacture of fine chemicals
	SU10 Formulation [mixing] of preparations and/or re-packaging
	SU11 Manufacture of rubber products
	SU13 Manufacture of other non-metallic mineral products
	SU14 Manufacture of basic metals, including alloys
	SU15 Manufacture of fabricated metal products, except machinery and equipment
	SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
	SU23 Electricity, steam, gas, water supply and sewage treatment
	SU9 Manufacture of fine chemicals

Worker

Process category	PROC4 Chemical production where opportunity for exposure arises
	PROC5 Mixing or blending in batch processes

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

Product characteristics

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

Frequency and duration of use

Application duration: 1 hour

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Automate activity where possible. Provide extract ventilation to points where emissions occur. Dispose of empty containers and wastes safely.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
Use suitable eye protection.
If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 0.78 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.54
	Worker - dermal: Exposure 0.48 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

Occupational exposure scenario for discharging bags (25-50kg) into mixing vessels

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for discharging big bags (750-1500kg) into mixing vessels

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for discharging big bags (750-1500kg) into mixing vessels
Product category	PC1 Adhesives, sealants. PC4 Anti-freeze and de-icing products. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC12 Lawn and garden preparations (- fertilizers). PC16 Heat transfer fluids. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC30 Photochemicals. PC32 Polymer preparations and compounds. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products
Main sector	SU3 Industrial uses

Occupational exposure scenario for discharging big bags (750-1500kg) into mixing vessels

Sector of use	SU1 Agriculture, forestry, fishery
	SU5 Manufacture of textiles, leather, fur
	SU6a Manufacture of wood and wood products
	SU6b Manufacture of pulp, paper and paper products
	SU7 Printing and reproduction of recorded media
	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)
	SU9 Manufacture of fine chemicals
	SU10 Formulation [mixing] of preparations and/or re-packaging
	SU11 Manufacture of rubber products
	SU13 Manufacture of other non-metallic mineral products
	SU14 Manufacture of basic metals, including alloys
	SU15 Manufacture of fabricated metal products, except machinery and equipment
	SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
	SU23 Electricity, steam, gas, water supply and sewage treatment
	SU9 Manufacture of fine chemicals

Worker

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

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

Product characteristics

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

Frequency and duration of use

Application duration: 1 hour

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Automate activity where possible. Provide extract ventilation to points where emissions occur. Dispose of empty containers and wastes safely.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
Use suitable eye protection.
Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Wear a respirator providing a minimum efficiency of (%): 90

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
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Occupational exposure scenario for discharging big bags (750-1500kg) into mixing vessels

Exposure

Worker - inhalation: Exposure 0.2 mg/m³, DNEL 1.45 mg/m³, RCR 0.14

Worker - dermal: Exposure 4.8 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for transfer of substance or preparation from/to large vessels/containers at dedicated facilities

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for transfer of substance or preparation from/to large vessels/containers at dedicated facilities
Product category	PC0 Other products. PC1 Adhesives, sealants. PC7 Base metals and alloys. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC12 Lawn and garden preparations (- fertilizers). PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC32 Polymer preparations and compounds. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products
Main sector	SU3 Industrial uses

Occupational exposure scenario for transfer of substance or preparation from/to large vessels/containers at dedicated facilities

Sector of use	SU1 Agriculture, forestry, fishery SU2b Offshore industries SU6a Manufacture of wood and wood products SU6b Manufacture of pulp, paper and paper products SU7 Printing and reproduction of recorded media SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products SU13 Manufacture of other non-metallic mineral products SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU16 Manufacture of computer, electronic and optical products, electrical equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU18 Manufacture of furniture SU19 Building and construction work
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Worker

Process category	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

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

Amounts used

Amount per use: 25-40 tonnes

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
 Application duration: 2 hours

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Handle substance within a predominantly closed system provided with extract ventilation.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
 Use suitable eye protection.
 Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Inhalation Used ART model. Dermal MEASE
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Occupational exposure scenario for transfer of substance or preparation from/to large vessels/containers at dedicated facilities

Exposure

Worker - inhalation: Exposure 0.03 mg/m³, DNEL 1.45 mg/m³, RCR 0.21

Worker - dermal: Exposure 0.024 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for transfer of substances into small containers

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for transfer of substances into small containers
Product category	PC0 Other products. PC1 Adhesives, sealants. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC12 Lawn and garden preparations (- fertilizers). PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC30 Photochemicals. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products
Main sector	SU3 Industrial uses
Sector of use	SU1 Agriculture, forestry, fishery SU6a Manufacture of wood and wood products SU6b Manufacture of pulp, paper and paper products SU7 Printing and reproduction of recorded media SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products SU13 Manufacture of other non-metallic mineral products SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Occupational exposure scenario for transfer of substances into small containers

Process category PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

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

Product characteristics

Physical state Solid , or: Liquid

Concentration details Covers concentrations up to 8.6 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting Indoor.

Temperature Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Automate activity where possible. Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure

Worker - inhalation: Exposure 0.4 mg/m³, DNEL 1.45 mg/m³, RCR 0.28

Powder products

Worker - dermal: Exposure 1.44 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

Liquid products

Worker - dermal: Exposure 0.144 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for compaction and tableting of borate-containing powders

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for compaction and tableting of borate-containing powders
Product category	PC0 Other products. PC1 Adhesives, sealants. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC12 Lawn and garden preparations (- fertilizers). PC18 Ink and toners. PC19 Intermediate. PC35 Washing and cleaning products PC37 Water treatment chemicals.
Main sector	SU3 Industrial uses
Sector of use	SU1 Agriculture, forestry, fishery SU6a Manufacture of wood and wood products SU6b Manufacture of pulp, paper and paper products SU7 Printing and reproduction of recorded media SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products SU13 Manufacture of other non-metallic mineral products SU15 Manufacture of fabricated metal products, except machinery and equipment

Worker

Process category	PROC14 Tableting, compression, extrusion, pelletisation, granulation
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

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

Occupational exposure scenario for compaction and tableting of borate-containing powders

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.
Use suitable eye protection.

Additional advice If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Dermal MEASE Inhalation Workplace measurements
Exposure	Worker - inhalation: Exposure 1.3 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.90 Worker - dermal: Exposure 2.4 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for industrial use of abrasives

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for industrial use of abrasives
Article category	AC4 Stone, plaster, cement, glass and ceramic articles
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
<u>Worker</u>	
Process category	PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles

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

Product characteristics

Physical state	Solid
Concentration details	Covers concentrations up to 5 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures.

Risk management measures

Occupational exposure scenario for industrial use of abrasives

Wear suitable working clothes.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 0.166 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.11 SU3 Industrial uses Worker - dermal: Exposure 0.198 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001 SU22 Professional uses Worker - dermal: Exposure 0.119 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for closed production at ambient temperatures

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for closed production at ambient temperatures
Product category	PC0 Other products. PC1 Adhesives, sealants. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC12 Lawn and garden preparations (- fertilizers). PC18 Ink and toners. PC19 Intermediate. PC21 Laboratory chemicals. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC35 Washing and cleaning products PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products
Main sector	SU3 Industrial uses
Sector of use	SU1 Agriculture, forestry, fishery SU2b Offshore industries SU5 Manufacture of textiles, leather, fur SU6a Manufacture of wood and wood products SU6b Manufacture of pulp, paper and paper products SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products SU13 Manufacture of other non-metallic mineral products SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19 Building and construction work SU23 Electricity, steam, gas, water supply and sewage treatment

Worker

Occupational exposure scenario for closed production at ambient temperatures

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

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

Product characteristics

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

Amounts used

Amount per use: 1 tonne

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Handle substance within a closed system. Provide extract ventilation to material transfer points and other openings.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
 Use suitable eye protection.
 If above technical/organisational control measures are not feasible, then adopt following PPE:
 Wear a respirator conforming to EN140 with Type A/P2 filter or better.
 Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - inhalation: Exposure 0.08 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.06 Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for industrial application of adhesive

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for industrial application of adhesive
Product category	PC1 Adhesives, sealants.
Main sector	SU3 Industrial uses
Sector of use	SU6a Manufacture of wood and wood products SU6b Manufacture of pulp, paper and paper products SU16 Manufacture of computer, electronic and optical products, electrical equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU18 Manufacture of furniture SU19 Building and construction work

Worker

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: 1.5%

Amounts used

Occupational exposure scenario for industrial application of adhesive

Daily amount per site: 300 kg

Frequency and duration of use

Continuous process

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

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Automate activity where possible. Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method Inhalation Used ART model. Dermal MEASE

Exposure Worker - inhalation: Exposure 0.11 mg/m³, DNEL 1.45 mg/m³, RCR 0.076
Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for professional application of adhesive

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for professional application of adhesive
Product category	PC1 Adhesives, sealants.
Main sector	SU22 Professional uses
Sector of use	SU6a Manufacture of wood and wood products SU6b Manufacture of pulp, paper and paper products SU16 Manufacture of computer, electronic and optical products, electrical equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU18 Manufacture of furniture SU19 Building and construction work

Worker

Process category	PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid , or: Pasty
Concentration details	Concentration of substance in product: 1.5%

Amounts used

Daily amount per site: 300 kg

Frequency and duration of use

Covers daily exposure up to 2hours

Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Occupational exposure scenario for professional application of adhesive

Technical protective measures Automate activity where possible. Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method Inhalation Used ART model. Dermal MEASE

Exposure Worker - inhalation: Exposure 0.041 mg/m³, DNEL 1.45 mg/m³, RCR 0.028
Worker - dermal: Exposure 0.288 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/mease.php>



Exposure scenario

Occupational exposure scenario for fertigation using boron containing liquid fertilizer

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for fertigation using boron containing liquid fertilizer
Product category	PC12 Lawn and garden preparations (- fertilizers).
Main sector	SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

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

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: 7%

Frequency and duration of use

Loading of application equipment
Covers frequency up to 2 day/week, , .
Application duration: 15 minutes

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Handle substance within a closed system.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Occupational exposure scenario for fertigation using boron containing liquid fertilizer

Assessment method	MEASE
Exposure	Worker - dermal: Exposure 0.014 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001 Worker - inhalation Not relevant.

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/mease.php>



Exposure scenario

Occupational exposure scenario for transfer of boron-containing granular fertiliser

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for transfer of boron-containing granular fertiliser
Product category	PC12 Lawn and garden preparations (- fertilizers).
Main sector	SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery
<u>Worker</u>	
Process category	PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

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

Product characteristics

Physical state	Solid
Concentration details	Covers concentrations up to 4.5 %.

Frequency and duration of use

Loading of application equipment
Application duration: 1 hour
Covers frequency up to 2 days/year, , .

Other given operational conditions affecting workers exposure

Setting	Indoor/outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Occupational exposure scenario for transfer of boron-containing granular fertiliser

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method

Inhalation Used ART model. Dermal MEASE

Exposure

Worker - inhalation: Exposure 1.22 mg/m³, DNEL 1.45 mg/m³, RCR 0.84

Worker - dermal: Exposure 0.019 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for transfer of boron-containing liquid foliar fertilizer

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for transfer of boron-containing liquid foliar fertilizer
Product category	PC12 Lawn and garden preparations (- fertilizers).
Main sector	SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery
<u>Worker</u>	
Process category	PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 7 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Outdoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures No specific risk management measure identified beyond those operational conditions stated.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Occupational exposure scenario for transfer of boron-containing liquid foliar fertilizer

Wear suitable working clothes.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Solid in solution. For non-spraying processes (no aerosol generation), an inhalation exposure is considered to be not relevant.
Worker - dermal: Exposure 0.29 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for spreading of boron containing granular fertiliser

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for spreading of boron containing granular fertiliser
Product category	PC12 Lawn and garden preparations (- fertilizers).
Main sector	SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery
<u>Worker</u>	
Process category	PROC11 Non industrial spraying

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

Product characteristics

Physical state	Solid
Concentration details	Covers concentrations up to 21 %.

Frequency and duration of use

Covers frequency up to 4 days/year, , .

Other given operational conditions affecting workers exposure

Setting	Outdoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure that spray direction is only horizontal or downward. Ensure that the worker is situated in an open or closed cabin. Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Assumes a good basic standard of occupational hygiene is implemented.

Occupational exposure scenario for spreading of boron containing granular fertiliser

3. Exposure estimation (Health 1)

Assessment method	Used ART model.
Exposure	Dermal exposure is considered to be not relevant. Complete personal enclosure with ventilation. Worker - inhalation: Exposure 0.0004 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.001 Complete personal enclosure without ventilation. Worker - inhalation: Exposure 0.003 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.0021

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for application of boron-containing liquid fertiliser

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for application of boron-containing liquid fertiliser
Product category	PC12 Lawn and garden preparations (- fertilizers).
Main sector	SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery
<u>Worker</u>	
Process category	PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 7.7 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Outdoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure that spray direction is only horizontal or downward. Ensure that the worker is situated in an open or closed cabin.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Assumes a good basic standard of occupational hygiene is implemented.

Occupational exposure scenario for application of boron-containing liquid fertiliser

3. Exposure estimation (Health 1)

Assessment method	Inhalation Used ART model. Dermal MEASE
Exposure	Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001 Manual spraying Worker - inhalation: Exposure 0.17 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.12 Spraying/fogging by machine application Worker - inhalation: Exposure 0.0014 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for general production activities - closed processes and largely closed processes at high temperature

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for general production activities - closed processes and largely closed processes at high temperature
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU13 Manufacture of other non-metallic mineral products SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature PROC23 Open processing and transfer operations at substantially elevated temperature
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid
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Frequency and duration of use

Continuous.

Other given operational conditions affecting workers exposure

Occupational exposure scenario for general production activities - closed processes and largely closed processes at high temperature

Setting Indoor.

Temperature Assumes activities reflect a hot process.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Handle substance within a closed system. Provide extract ventilation to material transfer points and other openings.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable coveralls to prevent exposure to the skin.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Worker - inhalation: Exposure 0.01 mg/m³, DNEL 1.45 mg/m³, RCR 0.0069
Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/mease.php>



Exposure scenario

Occupational exposure scenario for industrial use of paints and coatings

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for industrial use of paints and coatings
Product category	PC9a Coatings and paints, thinners, paint removers. PC18 Ink and toners.
Main sector	SU3 Industrial uses
Sector of use	SU7 Printing and reproduction of recorded media
<u>Worker</u>	
Process category	PROC7 Industrial spraying PROC10 Roller application or brushing

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 3.6 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Occupational exposure scenario for industrial use of paints and coatings

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

PROC7 Industrial spraying

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method Inhalation Used ART model. Dermal MEASE

Exposure Worker - inhalation: Exposure 0.67 mg/m³, DNEL 1.45 mg/m³, RCR 0.46
Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for professional use of paints and coatings

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for professional use of paints and coatings
Product category	PC9a Coatings and paints, thinners, paint removers. PC18 Ink and toners.
Main sector	SU22 Professional uses
<u>Worker</u>	
Process category	PROC10 Roller application or brushing PROC11 Non industrial spraying

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 3.6 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Occupational exposure scenario for professional use of paints and coatings

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method Inhalation Used ART model. Dermal MEASE

Exposure Worker - inhalation: Exposure 0.67 mg/m³, DNEL 1.45 mg/m³, RCR 0.46
Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for professional installation of plasterboard, board and other products

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for professional installation of plasterboard, board and other products
Product category	PC8 Biocidal products
Article category	AC4 Stone, plaster, cement, glass and ceramic articles
Main sector	SU22 Professional uses
Sector of use	SU19 Building and construction work
<u>Worker</u>	
Process category	PROC21 Low energy manipulation and handling of substances bound in/on materials or articles

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

Product characteristics

Physical state	Solid
Concentration details	Covers concentrations up to 1 %.

Frequency and duration of use

Covers daily exposure up to 4hours

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures.
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Risk management measures

Occupational exposure scenario for professional installation of plasterboard, board and other products

Wear suitable working clothes.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Worker - inhalation: Exposure 0.005 mg/m³, DNEL 1.45 mg/m³, RCR 0.0034
Worker - dermal: Exposure 0.99 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for use of fabric detergents in industrial or professional settings

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for use of fabric detergents in industrial or professional settings
Product category	PC35 Washing and cleaning products
Main sector	SU22 Professional uses
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC19 Manual activities involving hand contact

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

Product characteristics

Physical state	Liquid , or: Gel
Concentration details	Concentration of substance in product: 1%

Amounts used

Small scale

Frequency and duration of use

Occupational exposure scenario for use of fabric detergents in industrial or professional settings

Machine
Covers daily exposure up to 5minutes
Hand
Application duration: <60 minutes

Other given operational conditions affecting workers exposure

Setting Indoor.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001
Worker - inhalation
Not relevant.

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for diluting Metal Working Fluid concentrate with water

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for diluting Metal Working Fluid concentrate with water
Product category	PC25 Metal working fluids.
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Process category	PROC5 Mixing or blending in batch processes
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 5.5 %.

Frequency and duration of use

Application duration: 1 hour

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Wear suitable working clothes.
Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

Occupational exposure scenario for diluting Metal Working Fluid concentrate with water

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	Worker - dermal: Exposure 0.005 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001 Worker - inhalation Not applicable.

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for use of cleaning solutions in industrial or professional settings

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for use of cleaning solutions in industrial or professional settings
Product category	PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC35 Washing and cleaning products
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC7 Industrial spraying PROC10 Roller application or brushing PROC11 Non industrial spraying PROC19 Manual activities involving hand contact

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 25 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Occupational exposure scenario for use of cleaning solutions in industrial or professional settings

Ventilation rate Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.
Use suitable eye protection.

Additional advice Avoid splashing.
Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method Inhalation Used ART model. Dermal MEASE

Exposure Spraying
Worker - inhalation: Exposure 1.2 mg/m³, DNEL 1.45 mg/m³, RCR 0.83
Worker - dermal: Exposure 0.14 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001
Roller, spreader, flow application
Worker - inhalation: Exposure 0.11 mg/m³, DNEL 1.45 mg/m³, RCR 0.076
Worker - dermal: Exposure 14.4 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.003

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for make up of treatment bath for galvanising, plating and other surface treatments

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for make up of treatment bath for galvanising, plating and other surface treatments
Product category	PC14 Metal surface treatment products
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Process category	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

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

Amounts used

Amount per use: 200 kg

Frequency and duration of use

Covers frequency up to 2 days/week, , .
Application duration: 30 minutes

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Use canopy hood (over hot process).
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Occupational exposure scenario for make up of treatment bath for galvanising, plating and other surface treatments

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Worker - inhalation: Exposure 0.78 mg/m³, DNEL 1.45 mg/m³, RCR 0.54
Worker - dermal: Exposure 0.288 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for galvanising, plating and other surface treatment of metal articles

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for galvanising, plating and other surface treatment of metal articles
Product category	PC14 Metal surface treatment products
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Process category	PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: 1%

Amounts used

Amount per use: 25-200 kg

Frequency and duration of use

Covers daily exposure up to 1 hour
Continuous process

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities and processes are carried out at a temperature of 60°C.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Use canopy hood (over hot process).

Occupational exposure scenario for galvanising, plating and other surface treatment of metal articles

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable coveralls to prevent exposure to the skin.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Solid in solution. For non-spraying processes (no aerosol generation), an inhalation exposure is considered to be not relevant.

Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for use of MWFs in machining

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for use of MWFs in machining
Product category	PC25 Metal working fluids.
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
<u>Worker</u>	
Process category	PROC17 Lubrication at high energy conditions in metal working operations PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 5.5 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities reflect a hot process.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Minimise exposure by extracted full enclosure for the operation or equipment.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Occupational exposure scenario for use of MWFs in machining

Risk management measures

Wear suitable working clothes.
Use suitable eye protection.

Additional advice

If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method

Dermal MEASE Inhalation Workplace measurements

Exposure

Worker - inhalation: Exposure 0.07 mg/m³, DNEL 1.45 mg/m³, RCR 0.048
Worker - dermal: Exposure 2.4 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for industrial use of flux pastes to coat welding/brazing rods

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for industrial use of flux pastes to coat welding/brazing rods
Product category	PC38 Welding and soldering products, flux products
Article category	AC7 Metal articles
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging
<u>Worker</u>	
Process category	PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation

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

Product characteristics

Physical state	Solid
Concentration details	Covers concentrations up to 1.48 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures.
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Risk management measures

Occupational exposure scenario for industrial use of flux pastes to coat welding/brazing rods

Wear suitable working clothes.

Use suitable eye protection.

In case of any doubt, wear a half-mask respirator to EN 529.
with filter for particulates: P3.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Inhalation Used ART model. Dermal MEASE
Exposure	Worker - inhalation: Exposure 0.043 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.03 Worker - dermal: Exposure 0.29 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for industrial/professional use of fluxes in welding/brazing

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for industrial/professional use of fluxes in welding/brazing
Product category	PC38 Welding and soldering products, flux products
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19 Building and construction work

Worker

Process category	PROC25 Other hot work operations with metals
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Pasty
Concentration details	Covers concentrations up to 1.48 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures.
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Occupational exposure scenario for industrial/professional use of fluxes in welding/brazing

Risk management measures

Wear suitable working clothes.

Use suitable eye protection.

Wear a respirator providing a minimum efficiency of (%): 95
with filter for particulates: P3.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Worker - inhalation: Exposure 0.005 mg/m³, DNEL 1.45 mg/m³, RCR 0.001
Worker - dermal: Exposure 0.2 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for industrial crushing grinding processes

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for industrial crushing grinding processes
Product category	PC19 Intermediate.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU13 Manufacture of other non-metallic mineral products

Worker

Process category	PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid
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Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Minimise exposure by extracted full enclosure for the operation or equipment.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures.

Risk management measures

Occupational exposure scenario for industrial crushing grinding processes

Wear suitable working clothes.

Use suitable eye protection.

Material transfers

Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Exposure

Not applicable.
(closed systems)

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/mease.php>



Exposure scenario

Occupational exposure scenario for make up of stock solution - photographic applications

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for make up of stock solution - photographic applications
Product category	PC30 Photochemicals.
Main sector	SU3 Industrial uses
<u>Worker</u>	
Process category	PROC19 Manual activities involving hand contact

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

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Powders Concentration of substance in product: 5% Solid in solution Concentration of substance in product: 1%

Amounts used

Amount per use: 50 litre

Frequency and duration of use

Covers weekly exposure up to 15minutes

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures.
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Risk management measures

Wear suitable working clothes.
Use suitable eye protection.

Occupational exposure scenario for make up of stock solution - photographic applications

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Dermal MEASE Inhalation Used ART model.
Exposure	Worker - inhalation: Exposure 0.001 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.001 Worker - dermal: Exposure 0.198 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for use of developer and fixer solutions in photographic applications

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for use of developer and fixer solutions in photographic applications
Product category	PC30 Photochemicals.
Main sector	SU22 Professional uses
<u>Worker</u>	
Process category	PROC13 Treatment of articles by dipping and pouring.

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

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 1 %.

Amounts used

Amount per use: 50 litre

Frequency and duration of use

Loading of application equipment
Application duration: 12 minutes

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Automated process with (semi) closed systems

Organisational measures to prevent/limit releases, dispersion and exposure

Occupational exposure scenario for use of developer and fixer solutions in photographic applications

Organisational measures Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.

Risk management measures

Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method MEASE

Exposure Solid in solution. For non-spraying processes (no aerosol generation), an inhalation exposure is considered to be not relevant.
Worker - dermal: Exposure 0.024 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for preparing and applying refractory mixes

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for preparing and applying refractory mixes
Product category	PC0 Other products. PC15 Non-metal-surface treatment products.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment

Worker

Process category	PROC7 Industrial spraying PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Covers concentrations up to 5 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities reflect a hot process.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Occupational exposure scenario for preparing and applying refractory mixes

Wear suitable working clothes.

Use suitable eye protection.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Inhalation Used ART model. Dermal MEASE
Exposure	PROC7 Industrial spraying Worker - inhalation: Exposure 0.012 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.008 PROC7 Industrial spraying Worker - dermal: Exposure 0.42 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001 PROC19 Manual activities involving hand contact Worker - dermal: Exposure 2.4 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for professional use of swimming pool tablets

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for professional use of swimming pool tablets
Main sector	SU22 Professional uses
<u>Worker</u>	
Process category	PROC0 Other process or activity.

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

Product characteristics

Physical state	Solid, low dustiness
Concentration details	Concentration of substance in product: 5%

Amounts used

Amount per use: 200 g

Frequency and duration of use

Application duration: 5 minutes

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures.
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Risk management measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	MEASE
Exposure	The use is assessed to be safe.

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

Occupational exposure scenario for professional use of swimming pool tablets

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Environmental exposure scenario for industrial use of borates during the manufacture of high alkali glass

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates during the manufacture of high alkali glass
Main sector	SU3 Industrial uses
Sector of use	SU13 Manufacture of other non-metallic mineral products
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate

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

Product characteristics

Physical state	Solid
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Amounts used

Annual amount used in the EU: 6200 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.006959
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 181
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
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Environmental exposure scenario for industrial use of borates during the manufacture of high alkali glass

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 995 µg/l, PNEC 2020 µg/l, RCR 0.493
Soil: Exposure 5.29 mg/kg, PNEC 5.4 mg/kg, RCR 0.979

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Environmental exposure scenario for industrial use of borates during the manufacture of low alkali glass

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Environmental exposure scenario for industrial use of borates during the manufacture of low alkali glass
Main sector	SU3 Industrial uses
Sector of use	SU13 Manufacture of other non-metallic mineral products
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate

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

Product characteristics

Physical state	Solid
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Amounts used

Annual amount used in the EU: 1150 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (after typical onsite RMMs): 0.036562
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 181
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Risk management measures

Good practice	Clear up spills immediately and dispose of waste safely.
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Environmental exposure scenario for industrial use of borates during the manufacture of low alkali glass

Technical measures Formulation activity is assumed to be a predominantly enclosed process.

STP type Municipal STP.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste.

3. Exposure estimation (Environment 1)

Environmental exposure Fresh water: Exposure 231 µg/l, PNEC 2020 µg/l, RCR 0.114
Soil: Exposure 5.15 mg/kg, PNEC 5.4 mg/kg, RCR 0.954

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

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Occupational exposure scenario for greasing at high energy conditions

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for greasing at high energy conditions
Product category	PC24 Lubricants, greases and release products.
Main sector	SU3 Industrial uses
Sector of use	SU15 Manufacture of fabricated metal products, except machinery and equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

Worker

Process category	PROC18 General greasing/lubrication at high kinetic energy conditions
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: 0.01%

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities reflect a hot process.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Minimise exposure by extracted full enclosure for the operation or equipment.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures. Regular inspection and maintenance of equipment and machines.
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Risk management measures

Occupational exposure scenario for greasing at high energy conditions

Wear suitable working clothes.

Use suitable eye protection.

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Dermal MEASE Inhalation Used ART model.
Exposure	Worker - inhalation: Exposure 0.0017 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.0012 Worker - dermal: Exposure 0.048 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Occupational exposure scenario for professional installation of cellulose insulation

Identification

Product name	Boric acid, boric oxide and sodium borates (exposures based on boron content)
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Occupational exposure scenario for professional installation of cellulose insulation
Product category	PC0 Other products.
Article category	AC4 Stone, plaster, cement, glass and ceramic articles
Main sector	SU22 Professional uses
Sector of use	SU19 Building and construction work
<u>Worker</u>	
Process category	PROC21 Low energy manipulation and handling of substances bound in/on materials or articles

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

Product characteristics

Physical state	Solid, high dustiness
Concentration details	Concentration of substance in product: 1.5-3.6%

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Ensure operatives are trained to minimise exposures.
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Risk management measures

Wear suitable working clothes.
Use suitable eye protection.
Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Occupational exposure scenario for professional installation of cellulose insulation

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Health 1)

Assessment method	Dermal MEASE Inhalation Workplace measurements
Exposure	Worker - inhalation: Exposure 0.3 mg/m ³ , DNEL 1.45 mg/m ³ , RCR 0.21 Worker - dermal: Exposure 0.15 mg/kg/day, DNEL 4800 mg/kg/day, RCR 0.001

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

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. For scaling see <http://www.ebrc.de/ebrc/ebrc-mease.php>



Exposure scenario

Workplace exposure to disodium metasilicate powders

Identification

Product name	Disodium Metasilicate
REACH registration number	01-2119449811-37-XXXX
CAS number	6834-92-0
EC number	229-912-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Workplace exposure to disodium metasilicate powders
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU2a Mining (without offshore industries) SU2b Offshore industries SU4 Manufacture of food products SU5 Manufacture of textiles, leather, fur SU6b Manufacture of pulp, paper and paper products SU7 Printing and reproduction of recorded media SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products SU12 Manufacture of plastics products, including compounding and conversion SU13 Manufacture of other non-metallic mineral products SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU16 Manufacture of computer, electronic and optical products, electrical equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU18 Manufacture of furniture SU19 Building and construction work SU20 Health services SU23 Electricity, steam, gas, water supply and sewage treatment

Environment

Workplace exposure to disodium metasilicate powders

Environmental release category

ERC1 Manufacture of the substance
 ERC2 Formulation into mixture
 ERC3 Formulation into solid matrix
 ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
 ERC5 Use at industrial site leading to inclusion into/onto article
 ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
 ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
 ERC7 Use of functional fluid at industrial site
 ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
 ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
 ERC8c Widespread use leading to inclusion into/onto article (indoor)
 ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
 ERC8f Widespread use leading to inclusion into/onto article (outdoor)

Worker

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
 PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC4 Chemical production where opportunity for exposure arises
 PROC5 Mixing or blending in batch processes
 PROC6 Calendering operations.
 PROC7 Industrial spraying
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC10 Roller application or brushing
 PROC11 Non industrial spraying
 PROC13 Treatment of articles by dipping and pouring.
 PROC14 Tableting, compression, extrusion, pelletisation, granulation
 PROC15 Use as laboratory reagent.
 PROC17 Lubrication at high energy conditions in metal working operations
 PROC19 Manual activities involving hand contact
 PROC21 Low energy manipulation and handling of substances bound in/on materials or articles
 PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature
 PROC23 Open processing and transfer operations at substantially elevated temperature
 PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles
 PROC25 Other hot work operations with metals
 PROC26 Handling of solid inorganic substances at ambient temperature

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

Product characteristics

Not regarded as dangerous for the environment. No exposure scenario required.

Workplace exposure to disodium metasilicate powders

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

Product characteristics

Physical state Solid

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

Risk management measures

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

PROC7 Industrial spraying

PROC11 Non industrial spraying

Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.

, or:

Provide enhanced general ventilation by mechanical means.

3. Exposure estimation (Environment 1)

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

3. Exposure estimation (Health 1)

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.



Exposure scenario

Workplace exposure to disodium metasilicate solutions

Identification

Product name	Disodium Metasilicate
REACH registration number	01-2119449811-37-XXXX
CAS number	6834-92-0
EC number	229-912-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Workplace exposure to disodium metasilicate solutions
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU4 Manufacture of food products SU5 Manufacture of textiles, leather, fur SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU11 Manufacture of rubber products SU12 Manufacture of plastics products, including compounding and conversion SU13 Manufacture of other non-metallic mineral products SU14 Manufacture of basic metals, including alloys SU15 Manufacture of fabricated metal products, except machinery and equipment SU16 Manufacture of computer, electronic and optical products, electrical equipment SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU18 Manufacture of furniture SU19 Building and construction work SU20 Health services

Environment

Workplace exposure to disodium metasilicate solutions

Environmental release category

ERC1 Manufacture of the substance
 ERC2 Formulation into mixture
 ERC3 Formulation into solid matrix
 ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
 ERC5 Use at industrial site leading to inclusion into/onto article
 ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
 ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
 ERC7 Use of functional fluid at industrial site
 ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
 ERC8c Widespread use leading to inclusion into/onto article (indoor)
 ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
 ERC8f Widespread use leading to inclusion into/onto article (outdoor)
 ERC9a Widespread use of functional fluid (indoor)
 ERC9b Widespread use of functional fluid (outdoor)

Worker

Process category

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
 PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC4 Chemical production where opportunity for exposure arises
 PROC5 Mixing or blending in batch processes
 PROC6 Calendering operations.
 PROC7 Industrial spraying
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC10 Roller application or brushing
 PROC11 Non industrial spraying
 PROC13 Treatment of articles by dipping and pouring.
 PROC14 Tableting, compression, extrusion, pelletisation, granulation
 PROC15 Use as laboratory reagent.
 PROC17 Lubrication at high energy conditions in metal working operations
 PROC19 Manual activities involving hand contact
 PROC20 Use of functional fluids in small devices
 PROC21 Low energy manipulation and handling of substances bound in/on materials or articles
 PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature
 PROC23 Open processing and transfer operations at substantially elevated temperature
 PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles
 PROC25 Other hot work operations with metals

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

Product characteristics

Not regarded as dangerous for the environment. No exposure scenario required.

Workplace exposure to disodium metasilicate solutions

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

Product characteristics

Physical state Solid in solution

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.

Risk management measures

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

PROC7 Industrial spraying

PROC11 Non industrial spraying

Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.

, or:

Provide enhanced general ventilation by mechanical means.

3. Exposure estimation (Environment 1)

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

3. Exposure estimation (Health 1)

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.



Exposure scenario Use in Consumer products

Identification

Product name	Disodium Metasilicate
REACH registration number	01-2119449811-37-XXXX
CAS number	6834-92-0
EC number	229-912-9
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Consumer products
Product category	PC1 Adhesives, sealants. PC3 Air care products. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC9c Finger paints. PC15 Non-metal-surface treatment products. PC16 Heat transfer fluids. PC17 Hydraulic fluids. PC31 Polishes and wax blends. PC34 Textile dyes and impregnating products PC35 Washing and cleaning products PC39 Cosmetics, personal care.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor) ERC9a Widespread use of functional fluid (indoor) ERC9b Widespread use of functional fluid (outdoor)
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Use in Consumer products

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

Product characteristics

Not regarded as dangerous for the environment. No exposure scenario required.

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

Product characteristics

Physical state Powder products , or: Liquid products

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

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

Other given operational conditions affecting Non-industrial exposure

Temperature Assumes activities are at ambient temperature (unless stated differently).

Room size 20 m³

Ventilation rate Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Consumer information Avoid using without gloves.

No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

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

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.



Exposure scenario

Manufacture of substance / Use as an intermediate / Use as a process chemical

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Manufacture of substance / Use as an intermediate / Use as a process chemical
Process scope	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6a Use of intermediate
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC15 Use as laboratory reagent.
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Manufacture of substance / Use as an intermediate / Use as a process chemical

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Palm of both hands. Covers skin contact area up to 480 cm ² . PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC15 Use as laboratory reagent. Local exhaust ventilation - efficiency of at least [%]: 90 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 97
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Distribution of substance

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Distribution of substance
Process scope	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Distribution of substance

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Local exhaust ventilation - efficiency of at least [%]: 90 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 97
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Formulation and (re)packing of substances and mixtures

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation and (re)packing of substances and mixtures
Process scope	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.

Formulation and (re)packing of substances and mixtures

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent. Local exhaust ventilation - efficiency of at least [%]: 90 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 97
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Formulation and (re)packing of substances and mixtures



Exposure scenario

Use as a fuel in industrial settings

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a fuel in industrial settings
Process scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels PROC19 Manual activities involving hand contact

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

Control of environmental exposure

Use as a fuel in industrial settings

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC16 Use of fuels Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm². PROC19 Manual activities involving hand contact Hands and forearms. Covers skin contact area up to 1980 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 97
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Risk management measures

PROC19 Manual activities involving hand contact
Wear suitable gloves tested to EN374.

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use as a fuel in professional settings

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a fuel in professional settings
Process scope	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC16 Use of fuels PROC19 Manual activities involving hand contact

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

Control of environmental exposure

Use as a fuel in professional settings

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC16 Use of fuels Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm². PROC19 Manual activities involving hand contact Hands and forearms. Covers skin contact area up to 1980 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Local exhaust ventilation - efficiency of at least [%]: 80
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Risk management measures

PROC19 Manual activities involving hand contact
Wear suitable gloves tested to EN374.

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Industrial use in cleaning agents

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial use in cleaning agents
Process scope	Covers the use as a component of cleaning products, including transfer from storage, pouring/unloading from drums or containers and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring.

Industrial use in cleaning agents

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 97 PROC7 Industrial spraying Ensure that a spraying booth is used.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Regular cleaning of work area. Ensure control measures are regularly inspected and maintained.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Industrial use in cleaning agents

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Professional use in cleaning agents

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional use in cleaning agents
Process scope	Covers the use as a component of cleaning products, including pouring/unloading from drums or containers and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
<u>Worker</u>	

Professional use in cleaning agents

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
	PROC4 Chemical production where opportunity for exposure arises
	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
	PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
	PROC10 Roller application or brushing
	PROC11 Non industrial spraying
	PROC13 Treatment of articles by dipping and pouring.

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm². PROC11 Non industrial spraying Both hands. Covers skin contact area up to 820 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises Local exhaust ventilation - efficiency of at least [%]: 80 PROC11 Non industrial spraying Ensure that spray direction is only horizontal or downward. Ensure that the direction of airflow is clearly away from the worker.
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Professional use in cleaning agents

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Regular cleaning of work area. Ensure control measures are regularly inspected and maintained.

3. Exposure estimation (Health 1)

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

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use as a laboratory reagent in industrial settings

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a laboratory reagent in industrial settings
Process scope	Use of the substance within laboratory settings, including material transfers and equipment cleaning.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
<u>Worker</u>	
Process category	PROC10 Roller application or brushing PROC15 Use as laboratory reagent.

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Use as a laboratory reagent in industrial settings

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Local exhaust ventilation - efficiency of at least [%]: 90
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use as a laboratory reagent in professional settings

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a laboratory reagent in professional settings
Process scope	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
<u>Worker</u>	
Process category	PROC10 Roller application or brushing PROC15 Use as laboratory reagent.

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Use as a laboratory reagent in professional settings

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts	PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC15 Use as laboratory reagent. Local exhaust ventilation - efficiency of at least [%]: 80
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Industrial use as wastewater treatment chemical

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial use as wastewater treatment chemical
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
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Worker

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169.27 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

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

Industrial use as wastewater treatment chemical

Human factors not influenced by risk management

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

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Local exhaust ventilation - efficiency of at least [%]: 90

3. Exposure estimation (Health 1)

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

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Professional use in oilfield drilling and production operations

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional use in oilfield drilling and production operations
Process scope	Oil field well drilling and production operations (including drilling muds and well cleaning), including material transfers, onsite formulation, well head operations, shaker room activities and related maintenance.
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
<u>Worker</u>	
Process category	PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

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

Control of environmental exposure

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
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Professional use in oilfield drilling and production operations

Vapour pressure 169.27 hPa @ 25°C

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Both hands. Covers skin contact area up to 960 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC4 Chemical production where opportunity for exposure arises Local exhaust ventilation - efficiency of at least [%]: 80

3. Exposure estimation (Health 1)

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

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Consumer use of cleaning agents and deicers (liquid non-spray products)

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of cleaning agents and deicers (liquid non-spray products)
Product category	PC4 Anti-freeze and de-icing products. PC35 Washing and cleaning products
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

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

Control of environmental exposure (Non-industrial)

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169 hPa @ 25°C
Concentration details	Maximum concentration after dilution for use: 2.5 %

Amounts used

Amount per use: 100 g

Consumer use of cleaning agents and deicers (liquid non-spray products)

Frequency and duration of use

Covers frequency up to 104 days/year, , .
Covers exposure up to 240 minutes per event.
Application duration: 20 minutes

Human factors not influenced by risk management

Potentially exposed body parts Hands and forearms. Covers skin contact area up to 1900 cm².

Other given operational conditions affecting Non-industrial exposure

Setting Indoor.
Room size 58 m³
Release area: 5 m²

3. Exposure estimation (Health 1)

Assessment method ConsExpo v4.1

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Consumer use of cleaning agents and deicers (liquid spray products)

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of cleaning agents and deicers (liquid spray products)
Product category	PC4 Anti-freeze and de-icing products. PC35 Washing and cleaning products
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

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

Control of environmental exposure (Non-industrial)

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169 hPa @ 25°C
Concentration details	Maximum concentration after dilution for use: 2.5 %

Amounts used

Amount per use: 16.2 g

Consumer use of cleaning agents and deicers (liquid spray products)

Frequency and duration of use

Covers frequency up to 365 days/year, , .
Covers exposure up to 60 minutes per event.
Application duration: 10 minutes

Human factors not influenced by risk management

Potentially exposed body parts Both hands. Covers skin contact area up to 960 cm².

Other given operational conditions affecting Non-industrial exposure

Setting Indoor.
Room size 15 m³
Release area: 1.71 m²

3. Exposure estimation (Health 1)

Assessment method ConsExpo v4.1

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Consumer use of fuels indoors

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of fuels indoors
Product category	PC13 Fuels.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)

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

Control of environmental exposure (Non-industrial)

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169 hPa @ 25°C
Concentration details	Concentration of substance in product: 80%

Amounts used

Amount per use: 16.2 g

Frequency and duration of use

Consumer use of fuels indoors

Covers frequency up to 2 days/week, , .
Covers exposure up to 10 minutes per event.
Application duration: 10 minutes

Other given operational conditions affecting Non-industrial exposure

Setting Indoor.
Room size 20 m³
Release area: 2 cm²

Other given operational conditions affecting Non-industrial exposure

Consumer information Avoid using without gloves. When not in use, keep containers tightly closed.

3. Exposure estimation (Health 1)

Assessment method ConsExpo v4.1

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Consumer use of fuels outdoors

Identification

Product name	Methanol
REACH registration number	01-2119433307-44-XXXX
CAS number	67-56-1
EC number	200-659-6
EU index number	603-001-00-X
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of fuels outdoors
Product category	PC13 Fuels.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)

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

Control of environmental exposure (Non-industrial)

No exposure assessment presented for the environment.

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

Product characteristics

Physical state	Liquid
Vapour pressure	169 hPa @ 25°C
Concentration details	Concentration of substance in product: 100%

Frequency and duration of use

Covers frequency up to 240 days/week, days/year, , .
Covers exposure up to 15 minutes per event.

Human factors not influenced by risk management

Consumer use of fuels outdoors

Potentially exposed body parts Palm of one hand. Covers skin contact area up to 240 cm².

Other given operational conditions affecting Non-industrial exposure

Setting Outdoor.

3. Exposure estimation (Health 1)

Assessment method ConsExpo v4.1

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

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use as Intermediate

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as Intermediate
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6a Use of intermediate
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Use as Intermediate

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.00002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Use as Intermediate

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC5 Mixing or blending in batch processes
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use as Process chemical

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as Process chemical
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Use as Process chemical

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.02
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.00001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Use as Process chemical

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Distribution of substance

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Distribution of substance
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC1 Manufacture of the substance
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Distribution of substance

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 6667 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.000001

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.00001

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 0.00001

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Distribution of substance

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Formulation & (re)packing of substances and mixtures

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation & (re)packing of substances and mixtures
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Formulation & (re)packing of substances and mixtures

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 100000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.005
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.005
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Formulation & (re)packing of substances and mixtures

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Production of polymers

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production of polymers
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Production of polymers

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm ² .
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Production of polymers

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

PROC5 Mixing or blending in batch processes

PROC6 Calendering operations.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use in Paints/Coatings (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Paints/Coatings (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Use in Paints/Coatings (industrial)

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 39945 kg

Frequency and duration of use

Emission days: 220 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.98
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.02
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	Wet scrubber for elimination of volatile components from waste gases.
Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC6 Calendering operations. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Use in Paints/Coatings (industrial)

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)
Main sector	SU22 Professional uses

Environment

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

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC10 Roller application or brushing Both hands. Covers skin contact area up to 960 cm². PROC19 Manual activities involving hand contact Both hands and main part of the arms. Covers skin contact area up to 1980 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Technical protective measures PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC10 Roller application or brushing Local exhaust ventilation - efficiency of at least [%]: 80

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC10 Roller application or brushing
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 80
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC13 Treatment of articles by dipping and pouring.
PROC19 Manual activities involving hand contact
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC11 Non industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 80%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%

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

Product characteristics

Physical state Liquid
Vapour pressure Vapour pressure < 0.5 kPa at STP.
Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.98
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.02
Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Risk management measures

Technical measures Wet scrubbing with discharge to biological treatment Filtration. Provide onsite wastewater removal efficiency of 87%.

3. Exposure estimation (Environment 1)

Use in Paints/Coatings/Adhesives/Sealants/Foams/Polymers/Filled Polymers (professional)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use in Cleaning Agents (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Cleaning Agents (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Use in Cleaning Agents (industrial)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50 kg

Frequency and duration of use

Emission days: 220 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 1

Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Use in Cleaning Agents (industrial)

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Cleaning agents (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Cleaning agents (professional)
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
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Use in Cleaning agents (professional)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC11 Non industrial spraying Whole body.

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 80

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

PROC11 Non industrial spraying

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 80%

Wear suitable coveralls to prevent exposure to the skin.

Efficiency of at least 80%

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 1580 kg

Use in Cleaning agents (professional)

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Provide onsite wastewater removal efficiency of 87%.
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario Use in lubricants (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in lubricants (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic energy conditions
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Use in lubricants (industrial)

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5000 kg

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.0003
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic energy conditions Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Use in lubricants (industrial)

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90
PROC17 Lubrication at high energy conditions in metal working operations PROC18 General greasing/lubrication at high kinetic energy conditions Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC17 Lubrication at high energy conditions in metal working operations
PROC18 General greasing/lubrication at high kinetic energy conditions
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%
PROC17 Lubrication at high energy conditions in metal working operations
PROC18 General greasing/lubrication at high kinetic energy conditions
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario
Production of rigid foam (consumer use)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production of rigid foam (consumer use)
Product category	PC32 Polymer preparations and compounds.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8f Widespread use leading to inclusion into/onto article (outdoor)
<u>Worker</u>	
Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

2. Conditions of use affecting exposure (Non-industrial - Environment 1)Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 5 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Production of rigid foam (consumer use)

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.15
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.005

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 30 %. Unless otherwise stated.

Frequency and duration of use

Application duration: 30 minutes
For each use event, covers use amounts up to 0.2 litre.

Human factors not influenced by risk management

Potentially exposed body parts	Covers skin contact area up to 1900 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Room size	Covers use in room size of 57.5 m ³ .
Ventilation rate	Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Exposure route	Inhalation
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3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

Assessment method	The Consexpo model has been used to estimate consumer exposures, unless otherwise indicated.
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Production of rigid foam (consumer use)

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Heat Transfer and Hydraulic Fluids (consumer use)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Heat Transfer and Hydraulic Fluids (consumer use)
Product category	PC16 Heat transfer fluids. PC17 Hydraulic fluids.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
<u>Worker</u>	
Process category	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 30 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Use in Heat Transfer and Hydraulic Fluids (consumer use)

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.05
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.05
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 30 %. Unless otherwise stated.

Frequency and duration of use

Application duration: 15 minutes

Human factors not influenced by risk management

Potentially exposed body parts	Both hands. Covers skin contact area up to 960 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Exposure route	Inhalation
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3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

Assessment method	The Consexpo model has been used to estimate consumer exposures, unless otherwise indicated. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities ECETOC TRA v2.0 Worker
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

Use in Heat Transfer and Hydraulic Fluids (consumer use)

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Paints/Coatings/Surface treatment products (consumer use)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Paints/Coatings/Surface treatment products (consumer use)
Product category	PC9a Coatings and paints, thinners, paint removers. PC15 Non-metal-surface treatment products. PC18 Ink and toners. PC23 Leather treatment products PC31 Polishes and wax blends. PC34 Textile dyes and impregnating products
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Risk management measures

Technical measures	No specific risk management measure identified beyond those operational conditions stated.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Use in Paints/Coatings/Surface treatment products (consumer use)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 25 %. Unless otherwise stated.

Human factors not influenced by risk management

Potentially exposed body parts	PC9a Coatings and paints, thinners, paint removers. PC15 Non-metal-surface treatment products. PC23 Leather treatment products PC34 Textile dyes and impregnating products Hands and forearms. Covers skin contact area up to 1900 cm ² . PC18 Ink and toners. Palm of one hand. Covers skin contact area up to 215 cm ² . PC31 Polishes and wax blends. Palm of both hands. Covers skin contact area up to 430 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Setting	Indoor.
Temperature	Assumes activities are at ambient temperature (unless stated differently).
Ventilation rate	Covers use under typical household ventilation.

Other given operational conditions affecting Non-industrial exposure

Exposure route	Inhalation
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The Consexpo model has been used to estimate consumer exposures, unless otherwise indicated.
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC6c Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 50000 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.002
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.01
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.0001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Production of Polymers/Filled Polymers/Foams/Coatings/Adhesives/Sealants

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90 PROC7 Industrial spraying Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

PROC5 Mixing or blending in batch processes

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

PROC7 Industrial spraying

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 90%

Wear suitable coveralls to prevent exposure to the skin.

Efficiency of at least 90%

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in water-treatment chemicals (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in water-treatment chemicals (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC3 Formulation into solid matrix
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.

Use in water-treatment chemicals (industrial)

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 100 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.05

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.95

Emission factor - soil Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

Use in water-treatment chemicals (industrial)

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario
Use in laboratories (industrial and professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in laboratories (industrial and professional)
Main sector	SU3 Industrial uses SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)**Product characteristics**

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Use in laboratories (industrial and professional)

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.5
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.5
Emission factor - soil	Not applicable - no direct release to soil.

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Provide onsite wastewater removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	Palm of one hand. Covers skin contact area up to 240 cm².
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Risk management measures

Use suitable eye protection.

3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in/as functional fluids (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in/as functional fluids (professional)
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC9b Widespread use of functional fluid (outdoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC20 Use of functional fluids in small devices
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
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Use in/as functional fluids (professional)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC20 Use of functional fluids in small devices Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5479 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.05

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.05

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Use in/as functional fluids (professional)

Dilution	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100

Risk management measures

Technical measures	Provide onsite wastewater removal efficiency of 87%.
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in/as functional fluids (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in/as functional fluids (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC7 Use of functional fluid at industrial site
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Use in/as functional fluids (industrial)

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 500 kg

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.001

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.001

Emission factor - soil Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water Typical onsite wastewater treatment technology provides removal efficiency of 87%.

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

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure < 0.5 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

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

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Palm of both hands. Covers skin contact area up to 480 cm².

Other given operational conditions affecting workers exposure

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 80 PROC17 Lubrication at high energy conditions in metal working operations Local exhaust ventilation - efficiency of at least [%]: 90

Use in/as functional fluids (industrial)

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 90

3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
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Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
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4. Guidance to check compliance with the exposure scenario (Health 1)

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in metal-working fluids (professional)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in metal-working fluids (professional)
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations
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2. Conditions of use affecting exposure (Workers - Health 1)

Use in metal-working fluids (professional)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations Palm of both hands. Covers skin contact area up to 480 cm². PROC11 Non industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Setting	Indoor.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC17 Lubrication at high energy conditions in metal working operations Local exhaust ventilation - efficiency of at least [%]: 80
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Risk management measures

Use in metal-working fluids (professional)

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC17 Lubrication at high energy conditions in metal working operations

Without local exhaust ventilation

Wear a respirator providing a minimum efficiency of (%): 80

PROC5 Mixing or blending in batch processes

PROC10 Roller application or brushing

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

PROC11 Non industrial spraying

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 80%

Wear suitable coveralls to prevent exposure to the skin.

Efficiency of at least 80%

PROC17 Lubrication at high energy conditions in metal working operations

Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Efficiency of at least 90%

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 1370 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.015
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.05
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.05

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Risk management measures

Technical measures	Provide onsite wastewater removal efficiency of 87%.
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3. Exposure estimation (Environment 1)

Environmental release	Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.
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Use in metal-working fluids (professional)

3. Exposure estimation (Health 1)

Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated
Exposure	Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in metal-working fluids (industrial)

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in metal-working fluids (industrial)
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations
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Use in metal-working fluids (industrial)

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

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Amounts used

Maximum daily site tonnage: 5000 kg

Frequency and duration of use

Emission days: 20 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.0003
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001
Emission factor - soil	Release fraction to soil from wide dispersive use (regional only): 0.001

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Water	Typical onsite wastewater treatment technology provides removal efficiency of 87%.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure < 0.5 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC13 Treatment of articles by dipping and pouring. PROC17 Lubrication at high energy conditions in metal working operations Palm of both hands. Covers skin contact area up to 480 cm². PROC7 Industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Use in metal-working fluids (industrial)

Setting Indoor.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. PROC7 Industrial spraying
Ensure that the direction of airflow is clearly away from the worker. Local exhaust ventilation - efficiency of at least [%]: 50
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Local exhaust ventilation - efficiency of at least [%]: 80
PROC17 Lubrication at high energy conditions in metal working operations Local exhaust ventilation - efficiency of at least [%]: 90

Risk management measures

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC17 Lubrication at high energy conditions in metal working operations
Without local exhaust ventilation
Wear a respirator providing a minimum efficiency of (%): 90
PROC5 Mixing or blending in batch processes
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring.
Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.
Efficiency of at least 90%
PROC7 Industrial spraying
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.
Efficiency of at least 90%
Wear suitable coveralls to prevent exposure to the skin.
Efficiency of at least 80%
PROC17 Lubrication at high energy conditions in metal working operations
Wear chemically-resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation (Environment 1)

Environmental release Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented.

3. Exposure estimation (Health 1)

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

Exposure Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.



Exposure scenario

Use in Agrochemicals - Professional

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Agrochemicals - Professional
Process scope	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging, including equipment clean-downs and disposal.
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.

Use in Agrochemicals - Professional

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

Product characteristics

Physical state	Liquid
Vapour pressure	0.123 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Amounts used

PROC11 Non industrial spraying
Low application rate (0.03 - 0.3 l/minute)

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).
Covers frequency up to 240 days/year, , .
Unless otherwise stated.
PROC11 Non industrial spraying
Covers frequency up to 5 days/week, , .
Application duration: 180 minutes

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Palm of one hand. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. Palm of both hands. Covers skin contact area up to 480 cm². PROC11 Non industrial spraying Whole body.
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Other given operational conditions affecting workers exposure

Setting	Indoor.
Room size	PROC11 Non industrial spraying Use in room with a volume of minimum [m ³]: 100

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Provide extract ventilation to points where emissions occur. Local exhaust ventilation - efficiency of at least [%]: 80 PROC11 Non industrial spraying Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	PROC11 Non industrial spraying Regular cleaning of equipment. Regular cleaning of work area. Ensure that spray direction is only horizontal or downward. Ensure that the task is not carried out by more than one worker simultaneously.
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Risk management measures

Use in Agrochemicals - Professional

Use suitable eye protection.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Wear suitable gloves tested to EN374.

PROC11 Non industrial spraying

PROC13 Treatment of articles by dipping and pouring.

Wear chemically-resistant gloves (tested to EN374) in combination with specific activity training.

Efficiency of at least 90%

Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation (Environment 1)

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

3. Exposure estimation (Health 1)

Assessment method

ECETOC TRA v2.0 Worker Unless otherwise stated.

PROC11 Non industrial spraying RISKOFDERM v2.1 Dermal

PROC11 Non industrial spraying Inhalation Stoffenmanager v4.0

Use in Agrochemicals - Professional

Exposure

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Worker - inhalation, long-term - local and systemic: Exposure 0.035 mg/m³, DNEL 35 mg/m³, RCR 0.001

Worker - dermal, long-term - systemic: Exposure 0.318 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.003

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Worker - inhalation, long-term - local and systemic: Exposure 12.95 mg/m³, DNEL 35 mg/m³, RCR 0.370

Worker - dermal, long-term - systemic: Exposure 0.16 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.010

PROC4 Chemical production where opportunity for exposure arises

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 6.36 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.060

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Worker - inhalation, long-term - local and systemic: Exposure 12.95 mg/m³, DNEL 35 mg/m³, RCR 0.370

Worker - dermal, long-term - systemic: Exposure 13.78 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.130

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

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 6.36 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.060

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 6.36 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.060

PROC11 Non industrial spraying

Worker - inhalation, long-term - local and systemic: Exposure 14 mg/m³, DNEL 35 mg/m³, RCR 0.400

Worker - dermal, long-term - systemic: Exposure 54.06 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.510

PROC13 Treatment of articles by dipping and pouring.

Worker - inhalation, long-term - local and systemic: Exposure 25.9 mg/m³, DNEL 35 mg/m³, RCR 0.740

Worker - dermal, long-term - systemic: Exposure 0.16 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.010

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. 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.



Exposure scenario

Use in oil and gas field drilling - Industrial

Identification

Product name	Ethanediol
REACH registration number	01-2119456816-28-XXXX
CAS number	107-21-1
EC number	203-473-3
EU index number	603-027-00-1
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in oil and gas field drilling - Industrial
Process scope	Oil field well drilling and production operations (including drilling muds and well cleaning), including material transfers, onsite formulation, well head operations, shaker room activities and related maintenance.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC7 Use of functional fluid at industrial site
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

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

Product characteristics

Physical state	Liquid
Vapour pressure	0.123 hPa @ 25°C
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Use in oil and gas field drilling - Industrial

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

Covers frequency up to 240 days/year, , .

Other given operational conditions affecting workers exposure

Setting Outdoor.

Ventilation rate Covers outdoor use.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures No specific risk management measure identified beyond those operational conditions stated.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. No specific measures identified.

Risk management measures

Use suitable eye protection and gloves.

Use suitable respiratory protection if ventilation is inadequate.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method EASY TRA v2.0

Exposure

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 Worker - inhalation, long-term - local and systemic: Exposure 1.82 mg/m³, DNEL 35 mg/m³, RCR 0.052
 Worker - dermal, long-term - systemic: Exposure 1.38 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.013

PROC5 Mixing or blending in batch processes
 Worker - inhalation, long-term - local and systemic: Exposure 9.03 mg/m³, DNEL 35 mg/m³, RCR 0.258
 Worker - dermal, long-term - systemic: Exposure 13.67 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.129

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 Worker - inhalation, long-term - local and systemic: Exposure 18.1 mg/m³, DNEL 35 mg/m³, RCR 0.517
 Worker - dermal, long-term - systemic: Exposure 13.67 mg/kg/day, DNEL 106 mg/kg/day, RCR 0.129

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

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.