SAFETY DATA SHEET
According to EC No 1907/2006 as amended as at the date of this SDS

Ethyl PROXITOL

Version	Revision Date:	SDS Number:	Date of last issue: 07.03.2023
3.2	24.11.2023	800001033949	Print Date 01.12.2023

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

1.1 Product identifier

Trade name	:	Ethyl PROXITOL
Product code	:	U5129
Registration number EU	:	01-2119462792-32-0001
Synonyms	:	EP, PGEE
CAS-No.	:	1569-02-4
EC-No.	:	216-374-5

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

Use of the Substance/Mixture	:	Solvent. Please refer to section 16 and/or the annexes for the registered uses under REACH.
Uses advised against	:	This product must not be used in applications other than the above without first seeking the advice of the supplier.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	:	**Shell Chemicals Europe B.V.** PO Box 2334 3000 CH Rotterdam Netherlands
Telephone	:	+31 (0)10 441 5137 / +31 (0)10 441 5191
Telefax	:	+31 (0)20 716 8316/ +31 (0)20 713 9230
Contact for Safety Data Sheet	:	sccmsds@shell.com

1.4 Emergency telephone number

+44 (0) 1235 239 670 (This telephone number is available 24 hours per day, 7 days per week)
Poison information centre: +45 82 12 12 12

Other information	:	PROXITOL is a trademark owned by Shell Trademark Management B.V. and Shell Brands Inc. and used by affiliates of Shell plc.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Eye irritation, Category 2	H319: Causes serious eye irritation.

Specific target organ toxicity - single exposure, Category 3, Narcotic effects	H336: May cause drowsiness or dizziness.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :

PHYSICAL HAZARDS:
H226 Flammable liquid and vapour.
HEALTH HAZARDS:
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
ENVIRONMENTAL HAZARDS:
Not classified as environmental hazard according to CLP criteria.

Precautionary statements :

Prevention:

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P243 Take precautionary measures against static discharge.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal:

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

2.3 Other hazards

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.
Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.
If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.

SECTION 3: Composition/information on ingredients

3.1 Substances

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
1-ethoxypropan-2-ol	1569-02-4 216-374-5	98 - 100

Stabilized with 25 ppm BHT.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Not expected to be a health hazard when used under normal conditions.

Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.

If inhaled : Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

In case of skin contact : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
If persistent irritation occurs, obtain medical attention.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.

Transport to the nearest medical facility for additional treatment.

If swallowed : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.

No specific hazards under normal use conditions.
Skin irritation signs and symptoms may include a burning sensation, redness, or swelling.

Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.

No specific hazards under normal use conditions.
Ingestion may result in nausea, vomiting and/or diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Call a doctor or poison control center for guidance.
Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media : None

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Carbon monoxide may be evolved if incomplete combustion occurs.

5.3 Advice for firefighters

Special protective equipment for firefighters : Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in

a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

Specific extinguishing methods : Standard procedure for chemical fires.

Further information : Clear fire area of all non-emergency personnel.
Keep adjacent containers cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Observe the relevant local and international regulations
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
Local authorities should be advised if significant spillages cannot be contained.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.
Vapour may form an explosive mixture with air.
6.1.1 For non emergency personnel:
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Stay upwind and keep out of low areas.
6.1.2 For emergency responders:
Avoid contact with skin, eyes and clothing.
Isolate hazard area and deny entry to unnecessary or unprotected personnel.
Stay upwind and keep out of low areas.

6.2 Environmental precautions

Environmental precautions : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.
Ventilate contaminated area thoroughly.
Monitor area with combustible gas indicator.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak

up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely
For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet., For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures	:	Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Ensure that all local regulations regarding handling and storage facilities are followed.
Advice on safe handling	:	Avoid contact with skin, eyes and clothing. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Bulk storage tanks should be diked (bunded). Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk. The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Do NOT use compressed air for filling, discharging, or handling operations. Glycol ethers can be peroxide formers.
Product Transfer	:	Refer to guidance under Handling section.
Fire-fighting class	:	II-1

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Packaging material : Suitable material: For containers, or container linings use mild steel, stainless steel.
Unsuitable material: Natural, butyl, neoprene or nitrile rubbers.

Unsuitable material: Aluminum, Most plastics.

Container Advice : Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

7.3 Specific end use(s)

Specific use(s) : Please refer to Ch16 for the registered uses under REACH.

Ensure that all local regulations regarding handling and storage facilities are followed.
See additional references that provide safe handling practices: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Biological occupational exposure limits

No biological limit allocated.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
1-ethoxypropan-2-ol	Workers	Inhalation	Acute systemic effects	466 mg/m3
1-ethoxypropan-2-ol	Workers	Inhalation	Acute systemic effects	466 mg/m3
1-ethoxypropan-2-ol	Workers	Dermal	Long-term systemic effects	74 mg/kg bw/day
1-ethoxypropan-2-ol	Consumers	Inhalation	Acute systemic effects	300 mg/m3
1-ethoxypropan-2-ol	Workers	Inhalation	Long-term systemic effects	211 mg/m3
1-ethoxypropan-2-ol	Consumers	Inhalation	Acute systemic effects	300 mg/m3

1-ethoxypropan-2-ol	Consumers	Dermal	Long-term systemic effects	44,3 mg/kg bw/day
1-ethoxypropan-2-ol	Consumers	Inhalation	Long-term systemic effects	127 mg/m3
1-ethoxypropan-2-ol	Consumers	Oral	Long-term systemic effects	14 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
1-ethoxypropan-2-ol	Water	10 mg/l
1-ethoxypropan-2-ol	Water	10 mg/l
1-ethoxypropan-2-ol	Sediment	37,6 mg/kg
1-ethoxypropan-2-ol	Sediment	37,6 mg/l
1-ethoxypropan-2-ol	Soil	2,4 mg/kg
1-ethoxypropan-2-ol	Soil	2,4 mg/l
1-ethoxypropan-2-ol	Sewage treatment plant	1250 mg/l
1-ethoxypropan-2-ol	Sewage treatment plant	1250 mg/l

8.2 Exposure controls

Engineering measures

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Firewater monitors and deluge systems are recommended.
Eye washes and showers for emergency use.
Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

General Information:
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.
The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Personal protective equipment (PPE) should meet recommended national standards. Check with

PPE suppliers.

Eye protection : Wear goggles for use against liquids and gas.
Wear full face shield if splashes are likely to occur.
Approved to EU Standard EN166.

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Butyl rubber. Nitrile rubber. Incidental contact/Splash protection: PVC or neoprene rubber gloves. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Skin and body protection : Wear antistatic and flame-retardant clothing, if a local risk assessment deems it so.
Skin protection is not required under normal conditions of use.
For prolonged or repeated exposures use impervious clothing over parts of the body subject to exposure.
If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to relevant Standard, and provide employee skin care programmes.
Protective clothing approved to EU Standard EN14605.

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.
Check with respiratory protective equipment suppliers.
Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing appa-

ratus.
Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
If air-filtering respirators are suitable for conditions of use:
Select a filter suitable for organic gases and vapours [Type A boiling point > 65°C (149°F)] meeting EN14387.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid.
Colour	:	clear
Odour	:	Ethereal
Odour Threshold	:	Data not available
Melting / freezing point	:	< -70 °C
Boiling point/boiling range	:	129 - 136 °C
Flammability		
Flammability (solid, gas)	:	Data not available
Lower explosion limit and upper explosion limit / flammability limit		
Upper explosion limit / upper flammability limit	:	12 %(V)
Lower explosion limit / Lower flammability limit	:	1,3 %(V)
Flash point	:	40 °C Method: PMCC / ASTM D3278
Auto-ignition temperature	:	255 °C
Decomposition temperature		
Decomposition temperature	:	Data not available
pH	:	Data not available
Viscosity		
Viscosity, dynamic	:	2,21 mPa.s (20 °C) Method: ASTM D445
Viscosity, kinematic	:	Data not available

Solubility(ies)		
Water solubility	:	Completely miscible. (20 °C)
Partition coefficient: n-octanol/water	:	log Pow: < 1
Vapour pressure	:	1.200 Pa (20 °C)
Relative density	:	0,91 (20 °C) Method: ASTM D4052
Density	:	ca. 897 kg/m3 (20 °C) Method: ASTM D4052
Relative vapour density	:	3,5
Particle characteristics		
Particle size	:	Data not available

9.2 Other information

Explosives	:	Not applicable
Oxidizing properties	:	Data not available
Evaporation rate	:	0,5
Conductivity	:	Electrical conductivity: > 10,000 pS/m, A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid, This material is not expected to be a static accumulator.
Surface tension	:	41,5 mN/m
Molecular weight	:	104,1 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

10.2 Chemical stability

No hazardous reaction is expected when handled and stored according to provisions

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Reacts with strong oxidising agents.

10.4 Conditions to avoid

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources. Prevent vapour accumulation.
In certain circumstances product can ignite due to static electricity.

Exposure to air or moisture over prolonged periods.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute toxicity

Components:

1-ethoxypropan-2-ol:

Acute oral toxicity : LD 50: > 5.000 mg/kg
Remarks: Low toxicity

Acute inhalation toxicity : Remarks: Low toxicity if inhaled.
Based on available data, the classification criteria are not met.

Acute dermal toxicity : LD 50: > 5.000 mg/kg
Remarks: Low toxicity

Skin corrosion/irritation

Components:

1-ethoxypropan-2-ol:

Remarks : Slightly irritating to skin.

Serious eye damage/eye irritation

Components:

1-ethoxypropan-2-ol:

Remarks : Causes serious eye irritation.

Respiratory or skin sensitisation

Components:

1-ethoxypropan-2-ol:

Remarks : Not a sensitiser.
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Components:

1-ethoxypropan-2-ol:

Genotoxicity in vivo : Remarks: No evidence of mutagenic activity.

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity

Components:

1-ethoxypropan-2-ol:

Remarks : Not a carcinogen.
Based on available data, the classification criteria are not met.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
1-ethoxypropan-2-ol	No carcinogenicity classification.

Reproductive toxicity

Components:

1-ethoxypropan-2-ol:

Effects on fertility :
Remarks: Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Components:

1-ethoxypropan-2-ol:

Remarks : May cause drowsiness or dizziness.
High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness.
Inhalation of vapours or mists may cause irritation to the respiratory system.

STOT - repeated exposure

Components:

1-ethoxypropan-2-ol:

Remarks : Based on available data, the classification criteria are not met.

Aspiration toxicity

Components:

1-ethoxypropan-2-ol:

Not an aspiration hazard., Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Components:

1-ethoxypropan-2-ol:

Remarks : Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12: Ecological information

12.1 Toxicity

Components:

1-ethoxypropan-2-ol:

Toxicity to fish	:	LC50 : > 100 mg/l Remarks: Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 : > 100 mg/l Remarks: Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to algae/aquatic plants	:	EC50 : > 100 mg/l Remarks: Practically non toxic:
Toxicity to microorganisms	:	IC50 : > 100 mg/l Remarks: Practically non toxic: Based on available data, the classification criteria are not met.
Toxicity to fish (Chronic toxicity)	:	Remarks: NOEC/NOEL > 100 mg/l
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Remarks: NOEC/NOEL > 100 mg/l

12.2 Persistence and degradability

Components:

1-ethoxypropan-2-ol:

Biodegradability	:	Remarks: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

1-ethoxypropan-2-ol:

Bioaccumulation	:	Remarks: Does not bioaccumulate significantly.

12.4 Mobility in soil

Components:

1-ethoxypropan-2-ol:

Mobility	:	Remarks: If product enters soil, it will be highly mobile and may contaminate groundwater., Dissolves in water.

12.5 Results of PBT and vPvB assessment

Components:

1-ethoxypropan-2-ol:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Do not dispose into the environment, in drains or in water courses.
Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

MARPOL - see International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) which provides technical aspects at controlling pollutions from ships.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.
Residues may cause an explosion hazard.
Do not, puncture, cut, or weld uncleaned drums.

Send to drum recoverer or metal reclaimer.

Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

SECTION 14: Transport information

14.1 UN number or ID number

ADR : 3271

RID : 3271

IMDG : 3271

IATA : 3271

14.2 UN proper shipping name

ADR : ETHERS, N.O.S. (1-ethoxypropan-2-ol)

RID : ETHERS, N.O.S. (1-ethoxypropan-2-ol)

IMDG : ETHERS, N.O.S. (1-ethoxypropan-2-ol)

IATA : ETHERS, N.O.S. (1-ethoxypropan-2-ol)

14.3 Transport hazard class(es)

ADR : 3

RID : 3

IMDG : 3

IATA : 3

14.4 Packing group

ADR

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

RID

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IMDG

Packing group : III

Labels : 3

IATA
Packing group : III
Labels : 3

14.5 Environmental hazards

ADR
Environmentally hazardous : no

RID
Environmentally hazardous : no

IMDG
Marine pollutant : no

14.6 Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

14.7 Maritime transport in bulk according to IMO instruments

Pollution category : Z
Ship type : 3
Product name : Propylene glycol monoalkyl ether

Additional Information **:** This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

Transport in bulk according to Annex II of Marpol and the IBC Code

SECTION 15: Regulatory information

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

Product Registration number : 1365264

REACH - List of substances subject to authorisation (Annex XIV) : Product is not subject to Authorisation under REACH.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Product is subject to the Order on the control of major accident hazards involving dangerous substances (BEK nr 372 of 25/04/2016) based on Seveso III directive (2012/18/EU).

The components of this product are reported in the following inventories:

AIIC	:	Listed
DSL	:	Listed
IECSC	:	Listed
ENCS	:	Listed
KECI	:	Listed
NZIoC	:	Listed
PICCS	:	Listed
TCSI	:	Listed
TSCA	:	Listed

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization;

KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Other information	:	For Industry guidance and tools on REACH please visit the CEFIC website at http://cefic.org/Industry-support. The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB. A vertical bar (|) in the left margin indicates an amendment from the previous version.
Sources of key data used to compile the Safety Data Sheet	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	On basis of test data.
Eye Irrit. 2	H319	Expert judgement and weight of evidence determination.
STOT SE 3	H336	Expert judgement and weight of evidence determination.

Identified Uses according to the Use Descriptor System

Uses - Worker
Title : Manufacture of substance- Industrial

Uses - Worker
Title : Use as an intermediate- Industrial

Uses - Worker
Title : Formulation & (re)packing of substances and mixtures- Indus-

trial

Uses - Worker
Title : Uses in Coatings- IndustrialSolvent-based process.

Uses - Worker
Title : Uses in Coatings- IndustrialWater-based process.

Uses - Worker
Title : Uses in Coatings- ProfessionalSolvent-based process.

Uses - Worker
Title : Uses in Coatings- ProfessionalWater-based process.

Identified Uses according to the Use Descriptor System

Uses - Consumer
Title : Use in coatings
- Consumer
Water-based process.

Uses - Consumer
Title : Uses in Coatings
- Consumer
Solvent-based process.

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

DK / EN

Exposure Scenario - Worker

300000000452	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Manufacture of substance- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15 **Environmental Release Categories**: ERC1, ESVOC SpERC 1.1.v1
Scope of process	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.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100%., Unless stated otherwise.,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures.Continuous process(closed systems)PROC1	No other specific measures identified.
General exposures.Continuous process-with sample collection(closed systems)PROC2	No other specific measures identified.
Use in contained batch processesPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.

Process sampling(closed systems)PROC2	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	Drain down system prior to equipment opening or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Bulk transfersDedicated facilityPROC8b	Clear transfer lines prior to de-coupling. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	3,0E+04
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3,0E+04
Maximum daily site tonnage (kg/day):	1,0E+05
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	5,00E-03
Release fraction to wastewater from process (initial release prior to RMM):	1,00E-02
Release fraction to soil from process (initial release prior to RMM):	1,00E-04
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Soil emission controls are not applicable as there is no direct release to soil.	
Onsite waste water treatment required.	

Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,35
Assumed industrial waste water treatment plant flow (m3/d)	2.000
Organisational measures to prevent/limit release from site	
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
Bund storage facilities to prevent soil and water pollution in the event of spillage.	
A leak prevention plan is needed to prevent low level continual releases.	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Do not discharge to sewers or drains.	
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,98E+06
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 5%.	
Type of treatment suitable for waste: approved landfill.	
Type of treatment suitable for waste: incineration.	
Removal efficiency (%): 99.98.	
Dispose of waste product or used containers according to local regulations.	
Treat as hazardous waste.	
Conditions and measures related to external recovery of waste	
Estimated amount entering waste treatment no greater than: 5%.	
Type of treatment suitable for waste: redistillation.	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**

Section 4.1 - Health
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.

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000000453	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use as an intermediate- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15 **Environmental Release Categories**: ERC6a, ESVOC SpERC 6.1a.v1
Scope of process	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100%., Unless stated otherwise.,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures.Continuous process(closed systems)PROC1	No other specific measures identified.
General exposures.Continuous process-with sample collection(closed systems)PROC2	No other specific measures identified.
Use in contained batch processesPROC3	No other specific measures identified.
General exposures (open systems)PROC4	No other specific measures identified.

Process sampling(closed systems)PROC2	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	Drain down system prior to equipment opening or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Bulk transfersDedicated facilityPROC8b	Clear transfer lines prior to de-coupling. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). , or: Ensure operation is undertaken outdoors.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	3,0E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3,0E+03
Maximum daily site tonnage (kg/day):	1,0E+04
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	2,00E-03
Release fraction to wastewater from process (initial release prior to RMM):	1,00E-02
Release fraction to soil from process (initial release prior to RMM):	1,00E-03
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,35

Assumed industrial waste water treatment plant flow (m3/d)	2.000
Organisational measures to prevent/limit release from site	
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
Bund storage facilities to prevent soil and water pollution in the event of spillage.	
A leak prevention plan is needed to prevent low level continual releases.	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Do not discharge to sewers or drains.	
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,98E+06
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 2%.	
Type of treatment suitable for waste: incineration.	
Removal efficiency (%): 99.98.	
Dispose of waste product or used containers according to local regulations.	
Treat as hazardous waste.	
Conditions and measures related to external recovery of waste	
Estimated amount entering waste treatment no greater than: 2%.	
Type of treatment suitable for waste: redistillation.	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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.

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000000454	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Formulation & (re)packing of substances and mixtures- Industrial
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15 **Environmental Release Categories**: ERC2, ESVOC SpERC 2.2.v1
Scope of process	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100%., Unless stated otherwise.,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures.Continuous process-no sampling(closed systems)PROC1	No other specific measures identified.
General exposures.Continuous process-with sample collection(closed systems)PROC2	No other specific measures identified.
General exposures.Use in contained batch processeswith sample collec-	No other specific measures identified.

tionPROC3	
General exposures (open systems)PROC4	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Batch processes at elevated temperatures(closed systems)PROC3	Operating temperature: Up to 20°C above ambient maximum. Fugacity band at operating temperature: Liquid, vapour pressure 0.5 - 10 kPa
Process sampling(closed systems)PROC2	No other specific measures identified.
Bulk transfersDedicated facilityPROC8b	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). , or: Ensure operation is undertaken outdoors.
Mixing operations (open systems)PROC5	Provide extraction ventilation at points where emissions occur.
Transfer from/pouring from containersManualPROC8a	Provide extract ventilation to material transfer points and other openings.
Equipment cleaning and maintenancePROC8a	Drain down system prior to equipment opening or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Drum/batch transfersDedicated facilityPROC8b	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). , or: Ensure operation is undertaken outdoors.
Drum and small package fillingDedicated facilityPROC9	Fill containers/cans at dedicated filling points supplied with local extract ventilation.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Section 2.2	**Control of Environmental Exposure**

Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	3,0E+04
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3,0E+04
Maximum daily site tonnage (kg/day):	1,0E+05

Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	2,50E-02
Release fraction to wastewater from process (initial release prior to RMM):	5,00E-03
Release fraction to soil from process (initial release prior to RMM):	1,00E-04
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Soil emission controls are not applicable as there is no direct release to soil.	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,35
Assumed industrial waste water treatment plant flow (m3/d)	2.000
Organisational measures to prevent/limit release from site	
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
Bund storage facilities to prevent soil and water pollution in the event of spillage.	
A leak prevention plan is needed to prevent low level continual releases.	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,35
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,98E+06
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 5%.	
Type of treatment suitable for waste: approved landfill.	
Type of treatment suitable for waste: incineration.	
Removal efficiency (%): 99.98.	
Dispose of waste product or used containers according to local regulations.	

Treat as hazardous waste.
External treatment and disposal of waste should comply with applicable local and/or regional regulations.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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.	

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000000455	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings- IndustrialSolvent-based process.
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15 **Environmental Release Categories**: ERC4, ESVOC SpERC 4.3a.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100%., Unless stated otherwise.,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)PROC1	No other specific measures identified.
General exposures (closed systems)with sample collectionPROC2	No other specific measures identified.
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curingPROC2	Handle substance within a predominantly closed system provided with extract ventilation.
Mixing operations (closed systems)General expo-	No other specific measures identified.

sures (closed systems)PROC3	
Film formation - air dryingPROC4	No other specific measures identified.
Preparation of material for applicationMixing operations (open systems)PROC5	Provide extraction ventilation at points where emissions occur.
Spraying (automatic/robotic)PROC7	Carry out in a vented booth or extracted enclosure.
SprayingManualDedicated facilityPROC7	Carry out in a vented booth or extracted enclosure. Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Avoid carrying out operation for more than 4 hours. The ART tool has been used to calculate exposure
SprayingManualNon-dedicated facilityPROC7	Wear a full face respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Avoid carrying out operation for more than 4 hours.
Material transfersNon-dedicated facilityPROC8a	Provide extract ventilation to material transfer points and other openings.
Material transfersDedicated facilityPROC8b	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). , or: Ensure operation is undertaken outdoors.
Roller, spreader, flow applicationPROC10	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Dipping, immersion and pouringPROC13	Provide extraction ventilation at points where emissions occur.
Laboratory activitiesPROC15	No other specific measures identified.
Material transfersDrum/batch transfersTransfer from/pouring from containersDedicated facilityPROC8b	Fill containers/cans at dedicated filling points supplied with local extract ventilation.
Section 2.2	**Control of Environmental Exposure**

Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	

Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	3,0E+04
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3,0E+04
Maximum daily site tonnage (kg/day):	5,0E+04
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,80E-01
Release fraction to wastewater from process (initial release prior to RMM):	2,00E-02
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Soil emission controls are not applicable as there is no direct release to soil.	
Use a wet scrubber or dry filtration system to control air emissions of aerosols.	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,35
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,355
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,35
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	9,88E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Dispose of waste product or used containers according to local regulations.	
Treat as hazardous waste.	
Dispose of waste water from wet scrubbers using a waste disposal contractor only.	
External treatment and disposal of waste should comply with applicable local and/or regional	

regulations.
Conditions and measures related to external recovery of waste
Not applicable.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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.	

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000000456	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings- IndustrialWater-based process.
Use Descriptor	**Sector of Use**: SU3 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15 **Environmental Release Categories**: ERC4, ESVOC SpERC 4.3a.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers concentrations up to, 15 %
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)PROC1	No other specific measures identified.
General exposures (closed systems)with sample collectionPROC2	No other specific measures identified.
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curingPROC3	No other specific measures identified.
Mixing operations (closed systems)General expo-	No other specific measures identified.

sures (closed systems)PROC3	
Film formation - air dryingPROC4	No other specific measures identified.
Preparation of material for applicationMixing operations (open systems)PROC5	No other specific measures identified.
Spraying (automatic/robotic)PROC7	Carry out in a vented booth or extracted enclosure. Wear suitable gloves tested to EN374.
SprayingManualDedicated facilityPROC7	Carry out in a vented booth or extracted enclosure. Wear suitable gloves tested to EN374.
SprayingManualNon-dedicated facilityPROC7	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.
Material transfersNon-dedicated facilityPROC8a	No other specific measures identified.
Material transfersDedicated facilityPROC8b	No other specific measures identified.
Roller, spreader, flow applicationPROC10	No other specific measures identified.
Dipping, immersion and pouringPROC13	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Material transfersDrum/batch transfersTransfer from/pouring from containersDedicated facilityPROC9	No other specific measures identified.
Section 2.2	**Control of Environmental Exposure**

Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	3,0E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	3,0E+03
Maximum daily site tonnage (kg/day):	1,0E+04

Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,80E-01
Release fraction to wastewater from process (initial release prior to RMM):	2,00E-02
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Soil emission controls are not applicable as there is no direct release to soil.	
Use a wet scrubber or dry filtration system to control air emissions of aerosols.	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,35
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,35
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,35
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	9,88E+05
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Dispose of waste product or used containers according to local regulations.	
Treat as hazardous waste.	
Dispose of waste water from wet scrubbers using a waste disposal contractor only.	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	EXPOSURE ESTIMATION

Section 3.1 - Health

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

Section 3.2 -Environment

Used ECETOC TRA model.

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Section 4.1 - Health

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.

Section 4.2 -Environment

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.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000000457	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings- ProfessionalSolvent-based process.
Use Descriptor	**Sector of Use**: SU22 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.3b.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100%., Unless stated otherwise.,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)PROC1	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.PROC2	No other specific measures identified.
General exposures (closed systems)Use in contained systemsPROC2	No other specific measures identified.
Preparation of material for applicationPROC3	No other specific measures identified.
Film formation - air dryingOutdoorPROC4	Ensure operation is undertaken outdoors.

Film formation - air dryingIndoorPROC4	Provide extraction ventilation at points where emissions occur.
Preparation of material for applicationIndoorPROC5	Provide extraction ventilation at points where emissions occur.
Preparation of material for applicationOutdoorPROC5	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.
Material transfersDrum/batch transfersNon-dedicated facilityPROC8a	Provide extraction ventilation at points where emissions occur.
Material transfersDedicated facilityDrum/batch transfersPROC8b	Ensure material transfers are under containment or extract ventilation.
Roller, spreader, flow applicationIndoorPROC10	Provide extraction ventilation at points where emissions occur.
Roller, spreader, flow applicationOutdoorPROC10	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.
SprayingManualIndoorPROC11	Carry out in a vented booth or extracted enclosure. Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.
SprayingManualOutdoorPROC11	Ensure operation is undertaken outdoors. Wear a full face respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.
Dipping, immersion and pouringIndoorPROC13	Provide extraction ventilation at points where emissions occur.
Dipping, immersion and pouringOutdoorPROC13	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.
Laboratory activitiesPROC15	No other specific measures identified.
Hand application - fingerpaints, pastels, adhesivesIndoorPROC19	Limit the substance content in the product to 25 %. Wear a respirator conforming to EN140 with Type A filter or better.

	Change filter cartridge on respirator daily. Wear suitable gloves tested to EN374. Avoid carrying out operation for more than 4 hours.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	3,0E+03
Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	1,5
Maximum daily site tonnage (kg/day):	4,11
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Dispersive use.	
Release fraction to air from process (initial release prior to RMM):	9,8E-01
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-02
Release fraction to soil from process (initial release prior to RMM):	1,0E-02
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,35
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
A leak prevention plan is needed to prevent low level continual releases.	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage	87,35

treatment (%)	
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,35
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,1E+03
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 10%.	
Type of treatment suitable for waste: approved landfill.	
Type of treatment suitable for waste: incineration.	
Removal efficiency (%): 99.98.	
Dispose of waste product or used containers according to local regulations.	
Treat as hazardous waste.	
Dispose of waste water from wet scrubbers using a waste disposal contractor only.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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.	

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone

or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Worker

300000000458	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings- ProfessionalWater-based process.
Use Descriptor	**Sector of Use**: SU22 **Process Categories**: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.3b.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Worker Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure 0.5 - 10 kPa at STP
Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.	
Contributing Scenarios	**Risk Management Measures**
General measures (eye irritants).	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.
General exposures (closed systems)PROC1	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.PROC2	No other specific measures identified.
General exposures (closed systems)Use in contained systemsPROC2	No other specific measures identified.
Preparation of material for applicationPROC3	No other specific measures identified.
Film formation - air dryingOutdoorPROC4	Ensure operation is undertaken outdoors.

Film formation - air dryingIndoorPROC4	No other specific measures identified.
Preparation of material for applicationIndoorPROC5	No other specific measures identified.
Preparation of material for applicationOutdoorPROC5	Ensure operation is undertaken outdoors.
Material transfersDrum/batch transfersNon-dedicated facilityPROC8a	No other specific measures identified.
Material transfersDedicated facilityDrum/batch transfersPROC8b	No other specific measures identified.
Roller, spreader, flow application-IndoorPROC10	No other specific measures identified.
Roller, spreader, flow applicationOutdoorPROC10	Ensure operation is undertaken outdoors.
SprayingManualIndoorPROC11	Carry out in a vented booth or extracted enclosure.
SprayingManualOutdoorPROC11	Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily.
Dipping, immersion and pouringIndoorPROC13	No other specific measures identified.
Dipping, immersion and pouringOutdoorPROC13	Ensure operation is undertaken outdoors.
Laboratory activitiesPROC15	No other specific measures identified.
Hand application - fingerpaints, pastels, adhesivesIndoorPROC19	Avoid carrying out activities involving exposure for more than 4 hours
Hand application - fingerpaints, pastels, adhesivesOutdoorPROC19	Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Miscible in water.	
Practically non-toxic to aquatic species.	
Low bioaccumulation potential.	
Readily biodegradable.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	3,0E+02
Fraction of Regional tonnage used locally:	0,005
Annual site tonnage (tonnes/year):	0,15
Maximum daily site tonnage (kg/day):	0,41
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	

Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Dispersive use.	
Release fraction to air from process (initial release prior to RMM):	9,8E-01
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-02
Release fraction to soil from process (initial release prior to RMM):	1,0E-02
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
No specific measures required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,4
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
Bund storage facilities to prevent soil and water pollution in the event of spillage.	
A leak prevention plan is needed to prevent low level continual releases.	
Prevent environmental discharge consistent with regulatory requirements.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,4
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,4
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	331
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 10%.	
Type of treatment suitable for waste: approved landfill.	
Type of treatment suitable for waste: incineration.	
Removal efficiency (%): 99.98.	
Dispose of waste product or used containers according to local regulations.	
Treat as hazardous waste.	
Dispose of waste water from wet scrubbers using a waste disposal contractor only.	

Conditions and measures related to external recovery of waste
Not applicable.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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.	

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Consumer

300000001046	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Use in coatings - Consumer Water-based process.
Use Descriptor	**Sector of Use**: SU21 **Product Categories**: PC9a, PC9c **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.3c.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Consumer Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of the Substance in Mixture/Article	See specific operational conditions below.
Amounts Used	
See specific operational conditions below.	
Frequency and Duration of Use	
See specific operational conditions below.	
Other Operational Conditions affecting Exposure	
See specific operational conditions below.	
Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Coatings and paints, thinners, paint removers Waterborne latex wall paint.	Covers concentrations up to 1,5 %
	covers use up to 4 day/year
	Covers use up to 1 times/day of use
	covers skin contact area up to (cm2): 428
	For each use event, covers amount up to 2.760 g
	Covers use in room size of 20m3
	for each use event Covers exposure up to 2,20 hours/event
	Avoid using at a product concentration greater than 1,5 %
	For each use event, avoid using a product amount greater than 2.760 g
	Avoid using in room with closed doors.
	Avoid using when windows closed.
Finger paints Finger paints	Covers concentrations up to 10 %
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 100 g

	covers skin contact area up to (cm2): 254
	Covers use in room size of 20m3
	Covers use under typical household ventilation.
	Covers exposure up to 2,2 hours/event
	For each use event, assumes swallowed amount of 0,5 g
	Avoid using at a product concentration greater than 10 %
	For each use event, avoid using a product amount greater than 100 g
	For each use, avoid using for more than 2,2 hours/event
	Avoid using in room with closed doors.
	Avoid using when windows closed.
	For each use event, avoid swallowing amounts more than 0,5 g

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Miscible in water.	
Practically non-toxic to aquatic species.	
Readily biodegradable.	
Low bioaccumulation potential.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	3,0E+02
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	1,65
Maximum daily site tonnage (kg/day):	4,1E-01
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	0,985
Release fraction to wastewater from process (initial release prior to RMM):	0,01
Release fraction to soil from process (initial release prior to RMM):	0,005
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	78,4
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	78,4
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	331
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 10%.	
Dispose of empty containers and wastes safely.	

Dispose of waste in accordance with environmental legislation.
Conditions and measures related to external recovery of waste
Not applicable.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. The Consexpo model has been used to estimate consumer exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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.	

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Exposure Scenario - Consumer

300000001047	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings - Consumer Solvent-based process.
Use Descriptor	**Sector of Use**: SU21 **Product Categories**: PC9a, PC9c, PC18 **Environmental Release Categories**: ERC8a, ERC8d, ESVOC SpERC 8.3c.v1
Scope of process	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

SECTION 2	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Section 2.1	**Control of Consumer Exposure**
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of the Substance in Mixture/Article	See specific operational conditions below.
Amounts Used	
See specific operational conditions below.	
Frequency and Duration of Use	
See specific operational conditions below.	
Other Operational Conditions affecting Exposure	
Assumes activities are at ambient temperature (unless stated differently). Unless otherwise indicated, assumes use with typical ventilation.	
Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint.	Covers concentrations up to 10 %
	covers use up to 6 day/year
	For each use event, covers amount up to 750 g
	covers skin contact area up to (cm2): 428
	Covers use in room size of 20m3
	Covers exposure up to 2,2 hours/event
	Avoid using at a product concentration greater than 10 %
	For each use event, avoid using a product amount greater than 750 g
	Avoid using in room with closed doors.
	Avoid using when windows closed.
Coatings and paints, thinners, paint removers Aero-	Covers concentrations up to 50 %

sol spray can.	
	covers use up to 2 day/year
	For each use event, covers amount up to 215 g
	covers skin contact area up to (cm2): 254
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers exposure up to 0,3 hours/event
	Avoid using at a product concentration greater than 50 %
	, or:
	For each use event, avoid using a product amount greater than 215 g
	Avoid skin contact area greater than 254 cm2
	Avoid using in rooms smaller than a garage - room volume of at least 35 m3
	For each use, avoid using for more than 0,3 hours/event
Finger paints Finger paints	Covers concentrations up to 10 %
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 100 g
	covers skin contact area up to (cm2): 254 cm2
	Covers use in room size of 20m3
	Covers use under typical household ventilation.
	Covers exposure up to 2,2 hours/event
	For each use event, assumes swallowed amount of 0,5 g
	Avoid using at a product concentration greater than 10 %
	For each use event, avoid using a product amount greater than 100 g
	For each use, avoid using for more than 2,2 hours/event
	For each use event, avoid swallowing amounts more than 0,5 g
Ink and toners Inks and toners.	Covers concentrations up to 10 %
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 40 g
	covers skin contact area up to (cm2): 71
	Covers use in room size of 20m3
	Covers use under typical household ventilation.
	Covers exposure up to 2,2 hours/event
	Avoid using at a product concentration greater than 10 %
	For each use event, avoid using a product amount greater than 40 g
	covers skin contact area up to (cm2): 71 cm2
	For each use, avoid using for more than 2,2 hours/event

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Miscible in water.	
Practically non-toxic to aquatic species.	
Readily biodegradable.	
Low bioaccumulation potential.	
Amounts Used	

Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	3,0E+03
Fraction of Regional tonnage used locally:	5,0E-04
Annual site tonnage (tonnes/year):	1,5
Maximum daily site tonnage (kg/day):	16,44
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	9,8E-01
Release fraction to wastewater from process (initial release prior to RMM):	1,0E-02
Release fraction to soil from process (initial release prior to RMM):	1,0E-02
Conditions and Measures related to municipal sewage treatment plant	
Domestic sewage treatment is not assumed.	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,35
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,35
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,1E+03
Assumed domestic sewage treatment plant flow (m3/d)	2.000
Conditions and Measures related to external treatment of waste for disposal	
Estimated amount entering waste treatment no greater than: 10%.	
Dispose of empty containers and wastes safely.	
Dispose of waste in accordance with environmental legislation.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. The Consexpo model has been used to estimate consumer exposures unless otherwise indicated.	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	

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.

Section 4.2 -Environment
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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).