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

Ethyl Proxitol Acetate

Version	Revision Date:	SDS Number:	Date of last issue: 28.03.2023
2.2	24.11.2023	800001000220	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 Acetate
Product code	:	U5149
Registration number EU	:	01-2119475116-39
CAS-No.	:	54839-24-6

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

Use of the Substance/Mixture	:	Speciality 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)
National Emergency Number: 112

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.
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:
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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/ doctor if you feel unwell.

Storage:

P402 + P404 Store in a dry place. Store in a closed container.
P235 Keep cool.

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.

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)
2-Ethoxy-1-methylethyl acetate	54839-24-6 259-370-9	<= 100

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 : Flush eye with copious quantities of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
If persistent irritation occurs, obtain medical attention.

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 sen-

sation, redness, or swelling.

No specific hazards under normal use conditions.
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 : 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.
Product Transfer	:	Refer to guidance under Handling section.

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.
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 section 16 and/or the annexes 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

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
2-Ethoxy-1-methylethyl acetate	54839-24-6	MV	50 ppm 300 mg/m3	SI OEL
	Further information: Substances without teratogenic effects when respecting limit values and bat values.			
2-Ethoxy-1-methylethyl acetate		KTV	100 ppm 600 mg/m3	SI OEL
	Further information: Substances without teratogenic effects when respecting limit values and bat values.			

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
2-Ethoxy-1-methylethyl acetate	Workers	Dermal	Long-term systemic effects	103 mg/kg bw/day
2-Ethoxy-1-methylethyl acetate	Workers	Inhalation	Long-term systemic effects	302 mg/kg bw/day
2-Ethoxy-1-methylethyl acetate	Consumer use	Dermal	Long-term systemic effects	62 mg/kg bw/day
2-Ethoxy-1-methylethyl acetate	Consumer use	Inhalation	Long-term systemic effects	181 mg/m3
2-Ethoxy-1-methylethyl acetate	Consumer use	Oral	Long-term systemic effects	13,1 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
2-Ethoxy-1-methylethyl acetate	Fresh water	13 mg/l
2-Ethoxy-1-methylethyl acetate	Marine water	0,13 mg/l
2-Ethoxy-1-methylethyl acetate	Fresh water sediment	6,4 mg/kg
2-Ethoxy-1-methylethyl acetate	Marine sediment	0,64 mg/kg
2-Ethoxy-1-methylethyl acetate	Soil	1,34 mg/kg
2-Ethoxy-1-methylethyl acetate	Sewage treatment plant	62,5 mg/l
2-Ethoxy-1-methylethyl acetate	Oral	117 mg/kg

8.2 Exposure controls

Engineering measures

Read in conjunction with the Exposure Scenario for your specific use contained in the Annex.
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:
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.

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 : If material is handled such that it could be splashed into eyes, protective eyewear is recommended.
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 gloves.
Incidental contact/Splash protection: Nitrile rubber gloves.
For continuous contact we recommend gloves with break-through 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 : 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.

Wear antistatic and flame-retardant clothing, if a local risk assessment deems it so.

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 apparatus.
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	:	colourless
Odour	:	characteristic
Odour Threshold	:	Data not available
Melting / freezing point	:	-89 °C
Boiling point/boiling range	:	158 - 160 °C
Flammability		
Flammability (solid, gas)	:	Data not available
Lower explosion limit and upper explosion limit / flammability limit		
Upper explosion limit / upper flammability limit	:	9,8 %(V)
Lower explosion limit / Lower flammability limit	:	1 %(V)
Flash point	:	53 °C
Auto-ignition temperature	:	325 °C
Decomposition temperature		
Decomposition temperature	:	Data not available
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	Data not available
Viscosity, kinematic	:	1,33 mm2/s (40 °C) Method: ASTM D445
Solubility(ies)		
Water solubility	:	69,6 g/l (20 °C)
Partition coefficient: n-octanol/water	:	log Pow: 0,76
Vapour pressure	:	2,3 hPa (20 °C)
Relative density	:	Data not available
Density	:	0,941 g/cm3 (20 °C) Method: ASTM D4052
Relative vapour density	:	Data not available

Particle characteristics
Particle size : Data not available

9.2 Other information

Explosives	:	Not applicable
Oxidizing properties	:	Data not available
Evaporation rate	:	Data not available
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	:	39,1 mN/m, 20 °C
Molecular weight	:	146,2 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.

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:

2-Ethoxy-1-methylethyl acetate:

Acute oral toxicity : LD 50 (Rat): > 5000 mg/kg
Remarks: Low toxicity

Acute inhalation toxicity : Remarks: Low toxicity by inhalation.
LC50 greater than near-saturated vapour concentration.

Acute dermal toxicity : LD 50 (Rabbit): > 5000 mg/kg
Remarks: Low toxicity

Skin corrosion/irritation

Components:

2-Ethoxy-1-methylethyl acetate:

Remarks : Not irritating to skin.

Serious eye damage/eye irritation

Components:

2-Ethoxy-1-methylethyl acetate:

Remarks : Not irritating to eye.

Respiratory or skin sensitisation

Components:

2-Ethoxy-1-methylethyl acetate:

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

Germ cell mutagenicity

Components:

2-Ethoxy-1-methylethyl acetate:

Genotoxicity in vivo : Remarks: Not mutagenic.

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

Carcinogenicity

Components:

2-Ethoxy-1-methylethyl acetate:

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
2-Ethoxy-1-methylethyl acetate	No carcinogenicity classification.

Reproductive toxicity

Components:

2-Ethoxy-1-methylethyl acetate:

Effects on fertility :

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

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

STOT - single exposure

Components:

2-Ethoxy-1-methylethyl acetate:

Remarks : May cause drowsiness and dizziness.

STOT - repeated exposure

Components:

2-Ethoxy-1-methylethyl acetate:

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

Aspiration toxicity

Components:

2-Ethoxy-1-methylethyl acetate:
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:

2-Ethoxy-1-methylethyl acetate:

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

SECTION 12: Ecological information

12.1 Toxicity

Components:

2-Ethoxy-1-methylethyl acetate:

Toxicity to fish	:	Remarks: Practically non toxic: LC/EC/IC50 > 100 mg/l
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: Practically non toxic: LC/EC/IC50 > 100 mg/l
Toxicity to algae/aquatic plants	:	Remarks: Practically non toxic: LC/EC/IC50 > 100 mg/l
Toxicity to microorganisms	:	Remarks: LC/EC/IC50 > 100 mg/l Practically non toxic:

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

Toxicity to fish (Chronic toxicity) : Remarks: NOEC/NOEL > 10 - <=100 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: NOEC/NOEL > 100 mg/l

12.2 Persistence and degradability

Components:

2-Ethoxy-1-methylethyl acetate:

Biodegradability : Remarks: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

2-Ethoxy-1-methylethyl acetate:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

12.4 Mobility in soil

Components:

2-Ethoxy-1-methylethyl acetate:

Mobility : Remarks: If the product enters soil, one or more constituents will or may be mobile and may contaminate groundwater., Dissolves in water.

12.5 Results of PBT and vPvB assessment

Components:

2-Ethoxy-1-methylethyl acetate:

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).

Components:

2-Ethoxy-1-methylethyl acetate:

Additional ecological information : None known.

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	:	3272
RID	:	3272
IMDG	:	3272
IATA	:	3272

14.2 UN proper shipping name

ADR	:	ESTERS, N.O.S. (2-ethoxy-1-methylethyl acetate)
RID	:	ESTERS, N.O.S. (2-ethoxy-1-methylethyl acetate)
IMDG	:	ESTERS, N.O.S. (2-ethoxy-1-methylethyl acetate)
IATA	:	ESTERS, N.O.S. (2-ethoxy-1-methylethyl acetate)

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 methyl ether acetate

Additional Information **:** This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen 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

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).

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

Other regulations:

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

Product is subject to Law No. 36.2014 regulation amending and supplementing the Regulation on the prevention of major accidents and the reduction of their consequences, based on Seveso III directive (2012/18/EU).

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

AIIC : Listed

IECSC : Listed

ENCS	:	Listed
KECI	:	Listed
NZIoC	:	Listed
PICCS	:	Listed
TCSI	:	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

SI OEL	:	Slovenia. Chemical agents at work - Appendix 1: Occupational exposure limits
SI OEL / MV	:	Time Weighted Average
SI OEL / KTV	:	Short Term Exposure Limit

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.
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 : Formulation & (re)packing of substances and mixtures- Industrial

Uses - Worker
Title : Uses in CoatingsSolvent-based process.- Industrial

Uses - Worker
Title : Uses in CoatingsSolvent-based process.- Professional

Identified Uses according to the Use Descriptor System
Uses - Consumer
Title : Uses in Coatings
Solvent-based process.
- Consumer

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.

SI / EN

Exposure Scenario - Worker

300000010149	
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, ERC4, 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 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 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	No other specific measures identified.

Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Bulk product storage(closed systems)PROC2	No other specific measures identified.
Laboratory activi-tiesPROC15	No other specific measures identified.
Section 2.2	**Control of Environmental Exposure**

Substance is a unique structure.	
Readily biodegradable.	
Very soluble in water (>10g/l).	
Slightly toxic to aquatic species.	
Low bioaccumulation potential.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	2,0E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	2,0E+03
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):	0,001
Release fraction to wastewater from process (initial release prior to RMM):	0,003
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 re-lease estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emis-sions and releases to soil	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
No air emission controls required; required removal efficiency is 0%.	
Soil emission controls are not applicable as there is no direct release to soil.	
Onsite waste water treatment required.	
Do not discharge to sewers or drains.	
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 >= (%)	91,5
If discharging to domestic sewage treatment plant, provide the re-quired onsite wastewater removal efficiency of (%)	91,5
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	

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 (%)	91,5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	91,5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	9,8E+04
Assumed domestic sewage treatment plant flow (m3/d)	4,0E+03
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

300000010150	
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, 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 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	Formulate in enclosed or ventilated mixing vessels.
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 collectionPROC3	No other specific measures identified.
General exposures (open	No other specific measures identified.

systems)PROC4	
Batch processes at elevated temperatures(closed systems)PROC3	No other specific measures identified.
Process sampling(closed systems)PROC2	No other specific measures identified.
Bulk transfersDedicated facilityPROC8b	No other specific measures identified.
Mixing operations (open systems)PROC5	No other specific measures identified.
Transfer from/pouring from containersManualPROC9	No other specific measures identified.
Equipment cleaning and maintenancePROC8a	No other specific measures identified.
Drum/batch transfersDedicated facilityPROC8b	No other specific measures identified.
Drum and small package fillingDedicated facilityPROC9	No other specific measures identified.
Bulk product storage(closed systems)Product sampling.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.	
Readily biodegradable.	
Very soluble in water (>10g/l).	
Slightly toxic to aquatic species.	
Low bioaccumulation potential.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	2,0E+03
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	2,0E+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):	0,01
Release fraction to wastewater from process (initial release prior to RMM):	0,0015
Release fraction to soil from process (initial release prior to RMM):	1,0E-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 emis-	

sions and releases to soil	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Treat air emission to provide a typical removal efficiency of (%)	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	91,5
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Bund storage facilities to prevent soil and water pollution in the event of spillage.	
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 (%)	91,5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	91,5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1,98E+05
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
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: 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	
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

300000010151	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in CoatingsSolvent-based process.- Industrial
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 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 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	No other specific measures identified.
Mixing operations (closed systems)General exposures (closed systems)PROC3	No other specific measures identified.
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.
SprayingManualwith local exhaust ventilation.PROC7	Carry out in a vented booth or extracted enclosure.
SprayingManualWithout Local Exhaust VentilationPROC7	Wear a respirator conforming to EN140 with Type A filter or better. Change filter cartridge on respirator daily. Avoid carrying out activities involving exposure for more than 4 hours Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.
Material transfersNon-dedicated facilityPROC8a	No other specific measures identified.
Material transfersDedicated facilityPROC8b	No other specific measures identified.
Roller, spreader, flow applicationPROC10	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors.
Dipping, immersion and pouringPROC13	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Laboratory activitiesPROC15	No other specific measures identified.
Material transfersDrum/batch transfersTransfer from/pouring from containersDedicated facilityPROC9	No other specific measures identified.
Production or preparation or articles by tabletting, compression, extrusion or pelletisationPROC14	No other specific measures identified.
Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Very soluble in water (>10g/l).	
Slightly toxic to aquatic species.	
Low bioaccumulation potential.	
Amounts Used	
Fraction of EU tonnage used in region:	1
Regional use tonnage (tonnes/year):	1.000
Fraction of Regional tonnage used locally:	1
Annual site tonnage (tonnes/year):	200
Maximum daily site tonnage (kg/day):	3,3E+03
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):	0,098
Release fraction to wastewater from process (initial release prior to RMM):	0,02
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	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Soil emission controls are not applicable as there is no direct release to soil.	
Treat air emission to provide a typical removal efficiency of (%)	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	91,5
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	91,5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	91,5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	4,94E+04
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
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: 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	

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

300000010152	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in CoatingsSolvent-based process.- Professional
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 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 exposures (closed systems)PROC1	No other specific measures identified.
Filling/ preparation of equipment from drums or containers.with sample collection(closed systems)PROC2	No other specific measures identified.
General exposures (closed systems)Use in contained systems-with sample collectionPROC2	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 applicationDrum/batch transfersOutdoorPROC5	No other specific measures identified.
Material transfersDrum/batch transfersNon-dedicated facilityPROC8a	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). , or: Ensure operation is undertaken outdoors.
Material transfersDedicated facilityDrum/batch transfersPROC8b	No other specific measures identified.
Roller, spreader, flow applicationIndoorPROC10	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear suitable gloves tested to EN374.
Roller, spreader, flow applicationOutdoorPROC10	Ensure operation is undertaken outdoors. Wear suitable gloves tested to EN374.
SprayingManualIndoorPROC11	Carry out in a vented booth or extracted enclosure. Wear suitable gloves tested to EN374. Wear suitable coveralls to prevent exposure to the skin.
SprayingManualOutdoorPROC11	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. Avoid carrying out activities involving exposure for more than 4 hours
Dipping, immersion and pouringIndoorPROC13	No other specific measures identified.
Dipping, immersion and pouringOutdoorPROC13	No other specific measures identified.
Laboratory activitiesPROC15	No other specific measures identified.
Hand application - fingerpaints, pastels, adhesivesIndoorPROC19	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors. Wear suitable gloves tested to EN374.

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Very soluble in water (>10g/l).	
Slightly toxic to aquatic species.	
Low bioaccumulation potential.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	50

Fraction of Regional tonnage used locally:	0,0005
Annual site tonnage (tonnes/year):	0,1
Maximum daily site tonnage (kg/day):	0,275
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):	0,98
Release fraction to wastewater from process (initial release prior to RMM):	0,01
Release fraction to soil from process (initial release prior to RMM):	0,01
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	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.	
Onsite wastewater treatment plant is not assumed.	
Treatment of air emissions is not required for the purposes of REACH compliance but may be needed to comply with other environmental legislation.	
Prevent environmental discharge consistent with regulatory requirements.	
Treat air emission to provide a typical removal efficiency of (%)	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	87,3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	87,3
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87,3
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	137,5
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
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 or used sacks/containers according to local regulations.
Dispose of waste product or used containers according to local regulations.
Treat as hazardous waste.
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

300000010153	
SECTION 1	**EXPOSURE SCENARIO TITLE**
Title	Uses in Coatings Solvent-based process. - Consumer
Use Descriptor	**Sector of Use**: SU21 **Product Categories**: PC9a, 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.
Other Operational Conditions affecting Exposure	
Covers use at ambient temperatures.	
Product Categories	**OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES**
Coatings and paints, thinners, paint removers Solvent rich, high solid, water borne paint.	Covers concentration up to (%): 10
	covers use up to 6 day/year
	for each use event, covers amount up to (g): 500
	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 without an operating fan and open windows.
	Avoid using in room with closed doors.
Coatings and paints, thinners, paint removers Aerosol spray can.	Covers concentration up to (%): 10
	covers use up to 2 day/year
	for each use event, covers amount up to (g): 215
	covers skin contact area up to (cm2): 254
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers exposure up to 1 hours/event
	Avoid using in rooms smaller than a garage - room volume of

	at least 34 m3
Ink and toners Inks and toners.	Covers concentration up to (%): 10
	covers use up to (times/day of use): 1
	for each use event, covers amount up to (g): 50
	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 8 hours/event

Section 2.2	**Control of Environmental Exposure**
Substance is a unique structure.	
Readily biodegradable.	
Very soluble in water (>10g/l).	
Slightly toxic to aquatic species.	
Low bioaccumulation potential.	
Amounts Used	
Fraction of EU tonnage used in region:	0,1
Regional use tonnage (tonnes/year):	50
Fraction of Regional tonnage used locally:	2,0E-03
Annual site tonnage (tonnes/year):	0,1
Maximum daily site tonnage (kg/day):	0,274
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):	0,011
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 (%)	87
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	87
Assumed domestic sewage treatment plant flow (m3/d)	2,0E+03
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Estimated amount entering waste treatment no greater than: 10%.	
Treat as hazardous waste.	
Type of treatment suitable for waste: approved landfill.	
Type of treatment suitable for waste: incineration.	

Removal efficiency (%): 99.98.
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or regional regulations.
No suitable recovery methods available.

SECTION 3	**EXPOSURE ESTIMATION**
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated. EGRET Consumer Tool V2	

Section 3.2 -Environment
Used ECETOC TRA model.

SECTION 4	**GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO**
Section 4.1 - Health	
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Section 4.2 -Environment
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