

Trade name: Alcohols, C14-15-branched and linear

Print Date: 15. February 2021

Version: 1.1, revision date: 02.01.2021

Replaced version: 1.0 created on: 11.12.2019

Region: GB

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Material Name	Alcohols, C14-15-branched and linear
EC Number	931-287-9
REACH Registration No.	01-2119486413-36

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

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 those listed in Section 1 without first seeking the advice of the supplier.

**1.3. Details of the supplier of the safety data sheet****Company**

SysKem Chemie GmbH  
Brucknerweg 26  
D-42289 Wuppertal

Telephone	+49 (0) 202/30999510
Telefax	+49 (0) 202/87088403
E-mail address	info@syskem.de

**Prepared by / E-mail address of person responsible for the SDS**

info@syskem.de

**1.4. Emergency telephone number**

Vergiftungs-Informations-Zentrale Freiburg, Tel. +49 761 19240.

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008 (CLP)****Hazard Class & Category**

Hazardous to the aquatic environment -  
Long-term Hazard, Category 1

**Hazard statement**

H410

**2.2. Label elements****Hazard pictograms (CLP)****Signal word (CLP)**

Warning



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**Hazard statements (CLP)**

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements (CLP)**

P273 Avoid release to the environment.

P391 Collect spillage.

P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

**2.3. Other hazards****Health Hazards**

Slightly irritating to skin. Repeated exposure may cause skin dryness or cracking. Slightly irritating to the eye.

**Safety Hazards**

No specific hazards.

**Environmental Hazards**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Other Information :**

For a list of REACH registered uses, please refer to:

[www.shell.com/chemicals/reachuses](http://www.shell.com/chemicals/reachuses)

For Industry guidance and tools on REACH please visit the

CEFIC website at <http://cefic.org/Industry-support>.

This product is not classified for human health or environmental hazards. An exposure scenario is not required.

**SECTION 3: Composition/information on ingredients****3.1 Substance**

Material Formal Name	Alcohols, C14-16
Synonyms	Alcohols, C14-15-branched and linear
EC Number	931-287-9

**3.2 Mixture****Mixture Description**

Product is not a mixture according to regulation 1907/2006/EC.

**Hazardous Components****Classification of components according to Regulation (EC) No 1272/2008**

Chemical name	CAS-No.	EC No.	REACH Registration No.	Conc.
Alcohols, C14-15-branched and linear	Not available	931-287-9	01-2119486413-36	100,00 %

Chemical name	Hazard Class & Category	Hazard statement
Alcohols, C14-15-branched and linear	Aquatic Chronic, 1	H410

**Additional Information**

Refer to Ch 16 for full text of R- and H- phrases.

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



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#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

**General information:**

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

**After inhalation:**

No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

**After skin contact:**

Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.

**After eye contact:**

Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

**After swallowing:**

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

Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance.

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

Notes to doctor/physician: Treat symptomatically.

#### SECTION 5: Firefighting measures

##### 5.1. Extinguishing media

**Suitable extinguishing media:**

Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

**Unsuitable extinguishing media**

Do not use water in a jet.

##### 5.2. Special hazards arising from the substance or mixture

Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

##### 5.3. Advice 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).

**Additional information**

Keep adjacent containers cool by spraying with water.



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## SECTION 6: Accidental release measures

Observe all relevant local and international regulations.

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Safety Data Sheet. Use the following as appropriate: 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. Keep animals off contaminated vegetation. Stay upwind and keep out of low areas. Be ready for fire or possible exposure.

#### **For non emergency personnel**

Avoid contact with skin, eyes and clothing.

#### **For emergency responders**

Avoid contact with skin, eyes and clothing.

### 6.2. Environmental precautions

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination.

### 6.3. Methods and material for containment and 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 labelled, 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.

#### **Additional Advice**

Avoid release to the environment.

### 6.4 Reference to other sections

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

## SECTION 7: Handling and storage

### **General Precautions**

Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 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.



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### 7.1. Precautions for safe handling

Avoid contact with skin, eyes and clothing. Do not empty into drains. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Bulk storage tanks should be diked (bunded). Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Must be stored in a diked (bunded) area.

#### Product Transfer

Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.

### 7.2. Conditions for safe storage, including any incompatibilities

Bulk storage tanks should be diked (bunded). Vapours from tanks should not be released to atmosphere. Breathing losses during storage should be controlled by a suitable vapour treatment system. Nitrogen blanket recommended for large tanks (capacity 100 m<sup>3</sup> or higher). Storage Temperature : 45°C maximum. Insulation (lagging) will minimize heat loss in areas of low ambient temperature. Tanks should be fitted with heating coils in areas where ambient conditions can result in handling temperatures below the freezing point/pour point of the product. Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

#### Recommended Materials

Stainless steel. Epoxy resins. Polyester.

#### Unsuitable Materials

Aluminum Copper. Copper alloys.

#### 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)

Please refer to Ch16 for the registered uses under REACH.

#### Additional Information

Ensure that all local regulations regarding handling and storage facilities are followed.

## SECTION 8: Exposure controls/personal protection

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

### 8.1 Control parameters

#### Occupational Exposure Limits

UK Workplace Exposure Limits  
None established.

#### Additional Information

Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.



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**Biological Exposure Index (BEI)**

No biological limit allocated.

**Derived No Effect Levels (DNEL/DMEL) Table**

Component	Exposure Route	Exposure Type	Application Area	Value
Alcohols, C14-15-branched and linear		No DNEL value has been established.		

**Predicted No Effect Concentration (PNEC)**

Component	Exposure Route	Value	Remark
Alcohols, C14-15-branched and linear			Substance is a hydrocarbon with a complex, unknown or variable composition. Conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances.

**Monitoring Methods**

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods <http://www.cdc.gov/niosh/> Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods <http://www.osha.gov/> Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances, <http://www.hse.gov.uk/> Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany. <http://www.dguv.de/inhalt/index.jsp> L'Institut National de Recherche et de Sécurité, (INRS), France <http://www.inrs.fr/accueil>

**8.2 Exposure Controls****General Information**

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: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated. Eye washes and showers for emergency use. 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 for subsequent recycle



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**Occupational Exposure Controls****Personal Protective Equipment**

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

**Eye Protection**

Chemical splash goggles (chemical monogoggles).  
Approved to EU Standard EN166, AS/NZS:1337.

**Hand Protection**

Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Incidental contact/Splash protection: Nitrile rubber gloves. For continuous contact we recommend gloves with breakthrough time of more 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be 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.

**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.  
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 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 combined particulate/organic gases and vapors [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.

**Environmental Exposure Controls****Environmental exposure control measures**

Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour. Take appropriate measures to fulfill the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water.



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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	White. Waxy solid at 20 °C.
State of aggregation	Liquid/Solid
Odour	Mild.
pH-value at 20 °C:	Not applicable
Melting point/freezing point:	15 - 36 °C / 59 - 97 °F
Initial boiling point and boiling range:	289 °C / 552 °F 101.3 kPa
Pour point:	29 °C / 84 °F
Flash point:	157 °C / 315 °F (Pensky-Martens Closed Cup)
Flammability (solid, gas)	No, product cannot ignite due to static electricity.
Explosive properties:	Data not available.
Explosion limits:	
Lower:	Data not available.
Upper:	Data not available.
Oxidising properties	No
Vapour pressure at 20 °C:	< 0.05 Pa at 25 °C / 77 °F
Density:	820 kg/m <sup>3</sup> at 40 °C / 104 °F (ASTM D-1298)
Relative density	0.824 at 38 °C / 100 °F
Vapour density	7,5 (air = 1)
Evaporation rate	Not determined.
Solubility in / Miscibility with water:	ca. 0.2 mg/l at 25 °C / 77 °F Negligible.
Partition coefficient: n-octanol/water at 20 °C	6 - 6.2 log POW
Viscosity:	
Dynamic at 20 °C:	18.0 cst at 37.8 °C / 100.0 °F
Kinematic:	17 mm <sup>2</sup> /s at 40 °C / 104 °F

### 9.2. Other information

Surface tension	Data not available.
Molecular weight	221.0 g/mol
Coefficient of expansion	0.0031 LB/GAL
Electrical 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.

## 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

Oxidises on contact with air. Stable up to 45 degrees C

### 10.3. Possibility of hazardous reactions

Stable under normal conditions of use.





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#### 10.4. Conditions to avoid

Temperatures above 45°C

#### 10.5. Incompatible materials

Copper. Copper alloys. Aluminum  
Strong oxidising agents.

#### 10.6. Hazardous decomposition products

None expected under normal use conditions.

#### Other Information

##### Sensitivity to Static Discharge

No, product cannot ignite due to static electricity.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Basis for Assessment

Information given is based on product testing, and/or similar products, and/or components.

##### Routes of Exposure

Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

##### Acute Oral Toxicity

Low toxicity: LD50 >5000 mg/kg

##### Acute Dermal Toxicity

Low toxicity: LD50 >5000 mg/kg

##### Acute Inhalation Toxicity

Expected to be of low toxicity if inhaled.

Respiratory Irritation

Not expected to be a respiratory irritant.

##### Skin corrosion/irritation

Causes mild skin irritation.

##### Serious eye damage/eye irritation

Slightly irritating to the eye.

##### Respiratory or skin sensitisation

Not expected to be a sensitiser.

##### Mutagenicity

Not expected to be mutagenic.

##### Genotoxicity in vivo

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

##### Carcinogenicity

Not expected to be carcinogenic.

Material  
Alcohols, C14-15-branched  
and linear

Carcinogenicity Classification  
GHS / CLP: No carcinogenicity classification



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**Reproductive and Developmental toxicity**

Not expected to impair fertility. Not expected to be a developmental toxicant.

**Summary on evaluation of the CMR properties**

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

**Mutagenicity** : This product does not meet the criteria for classification in categories 1A/1B.

**Reproductive toxicity** : This product does not meet the criteria for classification in (fertility) categories 1A/1B.

**STOT - single exposure**

Not expected to be a hazard.

**STOT - repeated exposure**

Not expected to be a hazard.

**Aspiration toxicity**

Not considered an aspiration hazard.

**SECTION 12: Ecological information****Basis for Assessment**

Incomplete ecotoxicological data are available for this product. The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products.

**12.1 Toxicity****Acute Toxicity****Fish**

Expected to be not toxic at limit of water solubility.

**Aquatic crustacea**

Expected to be not toxic at limit of water solubility.

**Algae/aquatic plants**

Expected to be not toxic at limit of water solubility.

**Microorganisms**

Expected to be not toxic at limit of water solubility.

**Chronic Toxicity****Fish**

Data not available.

**Aquatic crustacea**

NOEC/NOEL <= 0.01 mg/l

**12.2 Persistence and degradability**

Readily biodegradable.

**12.3 Bioaccumulative potential**

Bioaccumulation is unlikely to occur due to metabolism and excretion.

**12.4 Mobility in soil**

Floats on water.

Adsorbs to soil and has low mobility.

**12.5 Results of PBT and vPvB 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 Other adverse effects**

None known.



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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Material Disposal

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 water.

#### Container Disposal

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.

#### Local Legislation

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 in compliance.

## SECTION 14: Transport information

### ADR

14.1 UN number	3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Alcohols, C14-15)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
Classification code	M6
Hazard identification no.	90
Danger label (primary risk)	9
14.5 Environmental hazards	Yes

### RID

14.1 UN number	3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Alcohols, C14-15)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
Classification code	M6
Hazard identification no.	90
Danger label (primary risk)	9
14.5 Environmental hazards	Yes

### Sea transport (IMDG Code)

14.1 UN number	3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical name	(Alcohols, C14-15)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
14.5 Environmental hazards	Yes. Marine Pollutant



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**Air transport (IATA):**

14.1 UN number	3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical name	(Alcohols, C14-15)
14.3 Transport hazard class(es)	9
14.4 Packing group	III

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Pollution Category	Y
Ship Type	2
Product Name	Alcohols (C13+)
Special Precaution	Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

**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.

**SECTION 15: Regulatory information**

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

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Other regulatory Information****Recommended restrictions on use (advice against)**

This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.

**Chemical Inventory Status**

AICS	Listed
DSL	Listed
INV (CN)	Listed
ENCS (JP)	Listed
TSCA	Listed
EINECS	Listed
KECI (KR)	Listed

**National Legislation**

OE_HP	Listed
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**15.2. Chemical Safety Assessment**

A Chemical Safety Assessment was performed for this substance.



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**SECTION 16: Other information****CLP Hazard statements**

H410 Very toxic to aquatic life with long lasting effects.

**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  
- Industrial**Uses - Worker**Title : Uses in Coatings  
- Industrial**Uses - Worker**Title : Uses in Coatings  
-Professional**Uses - Worker**Title : Use in Cleaning Agents  
- Industrial**Uses - Worker**Title : Use in Cleaning Agents  
- Professional**Uses - Worker**Title : Metal working fluids / rolling oils  
- Industrial**Uses - Worker**Title : Metal working fluids / rolling oils  
- Professional**Identified Uses according to the Use Descriptor System****Uses - Consumer****Uses - Worker**Title : Uses in Coatings  
-Consumer**Uses - Worker**Title : Use in Cleaning Agents  
- Consumer**Additional Information**

There has been an increase in the Environmental Hazards classification of this product in section 2. Ensure that the related sections (particularly sections 6, 8 & 12) are carefully studied.



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### Further Information

For a list of REACH registered uses, please refer to:  
[www.shell.com/chemicals/reachuses](http://www.shell.com/chemicals/reachuses)

For Industry guidance and tools on REACH please visit the  
CEFIC website at <http://cefic.org/Industry-support>.

This product is not classified for human health or  
environmental hazards. An exposure scenario is not required.

### Abbreviations and Acronyms

Aquatic Chronic = Hazardous to the aquatic environment - Long-term Hazard  
ACGIH = American Conference of Governmental Industrial Hygienists  
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road  
AICS = Australian Inventory of Chemical Substances  
ASTM = American Society for Testing and Materials  
BEL = Biological exposure limits  
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes  
CAS = Chemical Abstracts Service  
CEFIC = European Chemical Industry Council  
CLP = Classification Packaging and Labelling  
COC = Cleveland Open-Cup  
DIN = Deutsches Institut für Normung  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
DSL = Canada Domestic Substance List  
EC = European Commission  
EC50 = Effective Concentration fifty  
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals  
ECHA = European Chemicals Agency  
EINECS = The European Inventory of Existing Commercial Chemical Substances  
EL50 = Effective Loading fifty  
ENCS = Japanese Existing and New Chemical Substances Inventory  
EWC = European Waste Code  
GHS = Globally Harmonised System of Classification and Labelling of Chemicals  
IARC = International Agency for Research on Cancer  
IATA = International Air Transport Association  
IC50 = Inhibitory Concentration fifty  
IL50 = Inhibitory Level fifty  
IMDG = International Maritime Dangerous Goods  
INV = Chinese Chemicals Inventory  
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables  
KECI = Korea Existing Chemicals Inventory  
LC50 = Lethal Concentration fifty  
LD50 = Lethal Dose fifty per cent.  
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading  
LL50 = Lethal Loading fifty  
MARPOL = International Convention for the Prevention of Pollution From Ships  
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level  
OE\_HP V = Occupational Exposure - High Production Volume  
PBT = Persistent, Bioaccumulative and Toxic  
PICCS = Philippine Inventory of Chemicals and Chemical Substances  
PNEC = Predicted No Effect Concentration  
REACH = Registration Evaluation And Authorisation Of Chemicals  
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail  
SKIN\_DES = Skin Designation  
STEL = Short term exposure limit  
TRA = Targeted Risk Assessment  
TSCA = US Toxic Substances Control Act  
TWA = Time-Weighted Average  
vPvB = very Persistent and very Bioaccumulative

# SAFETY DATA SHEET



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Trade name: Alcohols, C14-15-branched and linear

Print Date: 15. February 2021

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**SDS Version Number** : 1.1  
**SDS Effective Date** : 02.01.2021  
**SDS Revisions** : Section 1  
**SDS Regulation** : The content and format of this safety data sheet is in accordance with Regulation 1907/2006/EC.  
**SDS Distribution** : The information in this document should be made available to all who may handle the product  
**Disclaimer** : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Region: GB

## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Manufacture of substance – Industrial</b>
<b>Use Descriptor</b>	Sector of Use: SU 3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC 1
<b>Scope of process</b>	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
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	13,900
Maximum daily site tonnage (kg/day):	4.63E+04
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	
Release fraction to wastewater from process (initial release prior to RMM):	
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	



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Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	10,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Use as an intermediate - Industrial</b>
<b>Use Descriptor</b>	Sector of Use: SU 3, SU8, SU9 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15 Environmental Release Categories: ERC 6A
<b>Scope of process</b>	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
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	1,870
Maximum daily site tonnage (kg/day):	6,233
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	3.80E-05
Release fraction to wastewater from process (initial release prior to RMM):	0.007
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	

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Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	10,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Formulation &amp; (re)packing of substances and mixtures - Industrial</b>
<b>Use Descriptor</b>	Sector of Use: SU 3, SU 10 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15 Environmental Release Categories: ERC 2
<b>Scope of process</b>	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	200
Maximum daily site tonnage (kg/day):	666.7
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	3.60E-04
Release fraction to wastewater from process (initial release prior to RMM):	2.00E-05
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	
<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	

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Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	10,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Uses in Coatings - Industrial</b>
<b>Use Descriptor</b>	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13, PROC 15 Environmental Release Categories: ERC 4
<b>Scope of process</b>	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
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	7,500
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	0.029
Maximum daily site tonnage (kg/day):	0.1
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0.03
Release fraction to wastewater from process (initial release prior to RMM):	0.03
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	

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<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Uses in Coatings - Professional</b>
<b>Use Descriptor</b>	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19 Environmental Release Categories: ERC 8A, ERC 8D
<b>Scope of process</b>	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
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	0.87
Maximum daily site tonnage (kg/day):	2.9
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0.01
Release fraction to wastewater from process (initial release prior to RMM):	0.01
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	



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<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Use in Cleaning Agents - Industrial</b>
<b>Use Descriptor</b>	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13 Environmental Release Categories: ERC 4
<b>Scope of process</b>	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	0.96
Maximum daily site tonnage (kg/day):	4.36
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	220
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0
Release fraction to wastewater from process (initial release prior to RMM):	1
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	

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<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Use in Cleaning Agents - Professional</b>
<b>Use Descriptor</b>	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13 Environmental Release Categories: ERC 8A, ERC 8D
<b>Scope of process</b>	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	0.52
Maximum daily site tonnage (kg/day):	1.42
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0
Release fraction to wastewater from process (initial release prior to RMM):	1
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	

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<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Metal working fluids / rolling oils - Industrial</b>
<b>Use Descriptor</b>	Sector of Use: SU 3 Process Categories: PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17 Environmental Release Categories: ERC 4
<b>Scope of process</b>	Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	7.5
Maximum daily site tonnage (kg/day):	25
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	9.60E-03
Release fraction to wastewater from process (initial release prior to RMM):	2.08E-07
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	

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<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenario - Worker

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Metal working fluids / rolling oils - Professional</b>
<b>Use Descriptor</b>	Sector of Use: SU 22 Process Categories: PROC 1, PROC 2, PROC 3, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17 Environmental Release Categories: ERC 8A, ERC 8D
<b>Scope of process</b>	Covers the use in formulated MWFs including transfer operations, open and contained cutting/machining activities, automated and manual application of corrosion protections, draining and working on contaminated/ reject articles, and disposal of waste oils.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	7.5
Maximum daily site tonnage (kg/day):	25
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	9.60E-03
Release fraction to wastewater from process (initial release prior to RMM):	2.08E-07
Release fraction to soil from process (initial release prior to RMM):	
<b>Technical conditions and measures at process level (source) to prevent release</b>	
Common practices vary across sites thus conservative process release estimates used.	



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<b>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</b>	
Risk from environmental exposure is driven by soil.	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment 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 >= (%)	99
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
<b>Organisational measures to prevent/limit release from site</b>	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99
Assumed domestic sewage treatment plant flow (m3/d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
During manufacturing no waste of the substance is generated.	
<b>Conditions and measures related to external recovery of waste</b>	
During manufacturing no waste of the substance is generated.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.	

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## Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Uses in Coatings - Consumer</b>
<b>Use Descriptor</b>	Sector of Use: SU 21 Product Categories: PC1, PC4, PC8 (excipient only), PC9a, PC9b, PC9c, PC15, PC18, PC23, PC24, PC31, PC34 Environmental Release Categories: ERC 8A, ERC 8D
<b>Scope of process</b>	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
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	0.87
Maximum daily site tonnage (kg/day):	2.9
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	300
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0.01
Release fraction to wastewater from process (initial release prior to RMM):	0.01
Release fraction to soil from process (initial release prior to RMM):	



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<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Risk from environmental exposure is driven by marine water.	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
<b>Conditions and measures related to external recovery of waste</b>	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	

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## Exposure Scenarios - Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
<b>Title</b>	<b>Use in Cleaning Agents - Consumer</b>
<b>Use Descriptor</b>	Sector of Use: SU 21 Product Categories: PC3, PC4, PC8 (excipient only), PC9a, PC9b, PC9c, PC24, PC35, PC38 Environmental Release Categories: ERC 8A, ERC 8D
<b>Scope of process</b>	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
<b>Additional Information</b>	No exposure assessment presented for human health.

Section 2.1	Control of Worker Exposure
<b>Product Characteristics</b>	

Contributing scenarios	Risk Management Measures

Section 2.1	Control of Worker Exposure
Substance is complex UVCB.	
Alcohol	
Readily biodegradable.	
<b>Amounts used</b>	
Fraction of EU tonnage used in region:	
Regional use tonnage (tonnes/year):	
Fraction of Regional tonnage used locally:	
Annual site tonnage (tonnes/year):	0.28
Maximum daily site tonnage (kg/day):	0.78
<b>Frequency and Duration of Use</b>	
Continuous release.	
Emission Days (days/year):	365
<b>Environmental factors not influenced by risk management</b>	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
<b>Other Operational Conditions affecting Environmental Exposure</b>	
Release fraction to air from process (initial release prior to RMM):	0
Release fraction to wastewater from process (initial release prior to RMM):	1
Release fraction to soil from process (initial release prior to RMM):	



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<b>Conditions and Measures related to municipal sewage treatment plant</b>	
Risk from environmental exposure is driven by marine water.	
Estimated substance removal from wastewater via domestic sewage treatment (%):	99
Assumed domestic sewage treatment plant flow (m <sup>3</sup> /d)	2,000
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/day).	
<b>Conditions and Measures related to external treatment of waste for disposal</b>	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	
<b>Conditions and measures related to external recovery of waste</b>	
External treatment and disposal of waste should comply with applicable local and/or national regulations.	

<b>SECTION 3</b>	<b>EXPOSURE ESTIMATION</b>
<b>Section 3.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 3.2 -Environment</b>	
Used EUSES model.	

<b>SECTION 4</b>	<b>GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO</b>
<b>Section 4.1 – Health</b>	
No exposure assessment presented for human health.	

<b>Section 4.2 -Environment</b>	
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.	