SAFETY DATA SHEET

Dimethyl Sulfide
Version 3.0


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

1.1

Product information
Product Name: Dimethyl Sulfide
Material: 1108785, 1073702, 1073703, 1073704, 1103885, 1073705, 1077804, 1089246, 1101535, 1098710, 1084190, 1028766, 1024530, 1024531, 1024532, 1024533, 1024534, 1024535, 1024536

EC-No. Registration number

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Legal Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl Sulfide</td>
<td>75-18-3</td>
<td>Chevron Phillips Chemicals International NV</td>
</tr>
<tr>
<td></td>
<td>200-846-2</td>
<td>01-2119487127-32-0001</td>
</tr>
</tbody>
</table>

1.2

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

Relevant Identified Uses Supported: Distribution, Formulation, Use as an intermediate, Use as an intermediate in pharma, Injection as odorant in fuels – industrial

1.3

Details of the supplier of the safety data sheet

Company: Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local: Chevron Phillips Chemicals International N.V.
Airport Plaza (Stockholm Building)
Leonardo Da Vincilaan 19
1831 Diegem
Belgium
# Dimethyl Sulfide

## Version 3.0

**SDS Requests:** (800) 852-5530  
**Technical Information:** (832) 813-4862  
**Responsible Party:** Product Safety Group  
**Email:** sds@cpchem.com

### 1.4 Emergency telephone:

**Health:**  
866.442.9628 (North America)  
1.832.813.4984 (International)

**Transport:**  
CHEMTREC 800.424.9300 or 703.527.3887 (int'l)  
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090  
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
Mexico CHEMTREC 01-800-681-9531 (24 hours)  
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600  
Argentina: +(54)-1159839431

**Responsible Department:** Product Safety and Toxicology Group  
**E-mail address:** SDS@CPChem.com  
**Website:** www.CPChem.com

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture  
**REGULATION (EC) No 1272/2008**

- **Flammable liquids, Category 2**  
  - **H225:** Highly flammable liquid and vapor.

### 2.2 Labeling (REGULATION (EC) No 1272/2008)

- **Hazard pictograms:** ![Flammable](image)

- **Signal Word:** Danger

- **Hazard Statements:** H225  
  - Highly flammable liquid and vapor.

- **Precautionary Statements:**  
  **Prevention:**  
  P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
  P233 Keep container tightly closed.

  **Response:**  
  P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
  P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

  **Storage:**  
  P403 + P235 Store in a well-ventilated place. Keep cool.

  **Disposal:**  
  P501 Dispose of contents/ container to an
Hazardous ingredients which must be listed on the label:
- 75-18-3 Dimethyl Sulfide

### SECTION 3: Composition/information on ingredients

#### 3.1 - 3.2 Substance or Mixture

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>Dimethyl Sulfide Pure</th>
<th>Methyl sulfide</th>
<th>DMS</th>
<th>Di-Methyl Sulfide</th>
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</thead>
<tbody>
<tr>
<td>Molecular formula</td>
<td>C2H6S</td>
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</table>

### Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [wt%]</th>
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<tr>
<td>Dimethyl Sulfide</td>
<td>75-18-3 200-846-2</td>
<td>Flam. Liq. 2; H225</td>
<td>99,5</td>
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</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

### SECTION 4: First aid measures

#### 4.1 Description of first-aid measures

- **General advice**: Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.
- **If inhaled**: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
- **In case of skin contact**: If on skin, rinse well with water. If on clothes, remove clothes.
- **In case of eye contact**: Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- **If swallowed**: Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

### SECTION 5: Firefighting measures

- **Flash point**: -37°C (-35°F) estimated
Dimethyl Sulfide

Autoignition temperature : 220°C (428°F)

5.1 Extinguishing media

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

5.3 Advice for firefighters

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Hazardous decomposition products : Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, etc.).
SAFETY DATA SHEET

Dimethyl Sulfide

Version 3.0
Revision Date 2020-04-28

6.4 Reference to other sections
Reference to other sections
For personal protection see section 8. For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Avoid formation of aerosol. Do not breathe vapors/dust. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion
Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements for storage areas and containers
No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>SE</th>
<th>Beståndsdelar</th>
<th>Grundval</th>
<th>Värde</th>
<th>Kontrollparametrar</th>
<th>Anmärkning</th>
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<tr>
<td>Dimethyl Sulfide</td>
<td>SE AFS</td>
<td>NGV</td>
<td>1 ppm.</td>
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</table>

<table>
<thead>
<tr>
<th>RU</th>
<th>Компоненты</th>
<th>Основа</th>
<th>Величина</th>
<th>Параметры контроля</th>
<th>Заметка</th>
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</thead>
<tbody>
<tr>
<td>Диметилсульфид</td>
<td>RU OEL</td>
<td>ПДК разовая</td>
<td>50 mg/m3</td>
<td>+, 4, пары и/или газы</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PT</th>
<th>Componentes</th>
<th>Bases</th>
<th>Valor</th>
<th>Parâmetros de</th>
<th>Nota</th>
</tr>
</thead>
</table>

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**8.2 Exposure controls**

**Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits.
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the workplace when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

Respiratory protection: Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection: The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection: Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. Wear as appropriate: Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.

Hygiene measures: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

### SECTION 9: Physical and chemical properties

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

**Appearance**
- **Form**: Liquid
- **Physical state**: Liquid
- **Color**: Clear
- **Odor**: Repulsive

**Safety data**
- **Flash point**: -37°C (-35°F) estimated
- **Lower explosion limit**: 2.2 % (V)
### Dimethyl Sulfide

**Upper explosion limit** : 19.7 % (V)

**Oxidizing properties** : yes

**Autoignition temperature** : 220°C (428°F)

**Molecular formula** : C₂H₆S

**Molecular weight** : 62.14 g/mol

**pH** : Not applicable

**Pour point** : No data available

**Boiling point/boiling range** : 37°C (99°F)

**Vapor pressure** : 15.00 PSI

**Relative density** : 0.85

**Water solubility** : 7.280 MG/L

**Partition coefficient: n-octanol/water** : log Pow: 0.84

**Solubility in other solvents** : Medium: Water slightly soluble

**Viscosity, kinematic** : 0.285 cSt

**Relative vapor density** : 2.1

**Evaporation rate** : No data available

**Percent volatile** : > 99 %

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Stable under recommended storage conditions.

#### 10.2 Chemical stability

This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Dimethyl Sulfide

10.3 **Possibility of hazardous reactions**

**Hazardous reactions**: Hazardous reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

10.4 **Conditions to avoid**: Heat, flames and sparks.

10.5 **Materials to avoid**: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

10.6 **Hazardous decomposition products**: Carbon oxides

Sulfur oxides

**Other data**: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 **Information on toxicological effects**

**Acute oral toxicity**

Dimethyl Sulfide: LD50: > 2,000 mg/kg
Species: Rat
Method: OECD Test Guideline 423

**Acute inhalation toxicity**

Dimethyl Sulfide: LC50: 102 mg/l
Exposure time: 4 h
Species: Rat
Sex: male and female
Test atmosphere: gas
Method: OECD Test Guideline 403

**Acute dermal toxicity**

Dimethyl Sulfide: LD50: > 2,000 mg/kg
Method: OECD Test Guideline 402

**Skin irritation**

Dimethyl Sulfide: No skin irritation

**Eye irritation**

SDS Number: 100000013358 9/26
Dimethyl Sulfide

**Sensitization**
Dimethyl Sulfide : Did not cause sensitization on laboratory animals.

**Repeated dose toxicity**
Dimethyl Sulfide : Species: Rat, Male and female  
Sex: Male and female  
Application Route: Oral diet  
Dose: 0, 2.5, 25, 250 mg/kg bw/day  
Exposure time: 14 wk  
Number of exposures: daily  
NOEL: 250 mg/kg  
Method: OECD Test Guideline 408  
No adverse effects expected

Species: Rat, Male and female  
Sex: Male and female  
Application Route: inhalation (vapor)  
Dose: 0, 0.310, 0.964, 2.783 mg/l  
Exposure time: 13 wk (6 h)  
Number of exposures: 7 d/wk  
NOEL: 2,783 mg/l  
Method: OECD Guideline 413  
Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**
Dimethyl Sulfide : Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Test Type: Mouse lymphoma assay  
Metabolic activation: with and without metabolic activation  
Method: OECD Guideline 476  
Result: negative

**Genotoxicity in vivo**
Dimethyl Sulfide : Test Type: In vivo micronucleus test  
Species: Mouse  
Cell type: Bone marrow  
Route of Application: Oral  
Dose: 1250, 2500, 5000 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

**Developmental Toxicity**
Dimethyl Sulfide : Species: Rat  
Application Route: oral gavage  
Dose: 100, 500, 1000 mg/kg  
Exposure time: GD 6 - 19  
Number of exposures: daily
Dimethyl Sulfide

Test period: 20 d
Method: OECD Guideline 414
NOAEL Teratogenicity: 1.000 mg/kg
NOAEL Maternal: 1.000 mg/kg

Dimethyl Sulfide
Aspiration toxicity: May be harmful if swallowed and enters airways.

CMR effects
Dimethyl Sulfide: Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. In vivo tests did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: Animal testing did not show any effects on fertility.

Dimethyl Sulfide
Further information: Solvents may degrease the skin.

SECTION 12: Ecological information

12.1
Toxicity
Toxicity to fish
Dimethyl Sulfide: LC50: 213 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
Dimethyl Sulfide: EC50: 29 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Method: OECD Test Guideline 202

Toxicity to algae
Dimethyl Sulfide: IC50: > 113.7 mg/l
Exposure time: 72 h
Species: Selenastrum capricornutum (algae)
Method: OECD Test Guideline 201

12.2
Persistence and degradability
Biodegradability
Dimethyl Sulfide: aerobic
Dimethyl Sulfide

Result: Readily biodegradable.
77 %
Method: OECD Test Guideline 301

12.3
Bioaccumulative potential

Bioaccumulation

Dimethyl Sulfide : No bioaccumulation is to be expected (log Pow <= 4).

12.4
Mobility in soil

Mobility

Dimethyl Sulfide : No data available

12.5
Results of PBT and vPvB assessment

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6
Other adverse effects

Additional ecological information : Harmful to aquatic life.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard
Dimethyl Sulfide : Harmful to aquatic life.

SECTION 13: Disposal considerations

13.1
Waste treatment methods

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product : The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.
SECTION 14: Transport information

14.1 - 14.7
Transport information
The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.). Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1164, DIMETHYL SULFIDE, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1164, DIMETHYL SULPHIDE, 3, II, (-37°C)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1164, DIMETHYL SULPHIDE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1164, DIMETHYL SULPHIDE, 3, II, (D/E)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1164, DIMETHYL SULPHIDE, 3, II

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1164, DIMETHYL SULPHIDE, 3, II

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

SECTION 15: Regulatory information

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

Water contaminating class (Germany)
WGK 2 water endangering
Dimethyl Sulfide

15.2 Chemical Safety Assessment

Components: dimethyl sulphide

Major Accident Hazard Legislation:
- 96/82/EC Update: 2003
  - Extremely flammable
  - Quantity 1: 10 t
  - Quantity 2: 50 t
- ZEU_SEVES3 Update:
  - FLAMMABLE LIQUIDS
  - P5c
  - Quantity 1: 5.000 t
  - Quantity 2: 50.000 t

Notification status:
- Europe REACH: On the inventory, or in compliance with the inventory
- United States of America (USA) TSCA: On the inventory, or in compliance with the inventory
- Canada DSL: On the inventory, or in compliance with the inventory
- Australia AICS: On the inventory, or in compliance with the inventory
- New Zealand NZIoC: On the inventory, or in compliance with the inventory
- Japan ENCS: On the inventory, or in compliance with the inventory
- Korea KECI: A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.
- Philippines PICCS: On the inventory, or in compliance with the inventory
- China IECSC: On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification:
- Health Hazard: 1
- Fire Hazard: 3
- Reactivity Hazard: 0

Further information

Legacy SDS Number: 61250

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.
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.

Key or legend to abbreviations and acronyms used in the safety data sheet

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
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<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
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</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
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<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
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</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
<td></td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
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<tr>
<td>EC50</td>
<td>Effective Concentration</td>
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<tr>
<td>EC50%</td>
<td>Effective Concentration 50%</td>
<td></td>
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<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
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<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
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<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
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<td>GHS</td>
<td>Globally Harmonized System</td>
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<td>&gt;=</td>
<td>Greater Than or Equal To</td>
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<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
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<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<td>Inventory of Existing Chemical Substances in China</td>
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<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
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<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
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<td>Less Than or Equal To</td>
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<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
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<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
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<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
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<td>PRNT</td>
<td>Presumed Not Toxic</td>
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<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
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<td>STEL</td>
<td>Short-term Exposure Limit</td>
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<td>SARA</td>
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<td>Threshold Limit Value</td>
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<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
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<td>TSCA</td>
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<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
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<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
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</table>

Full text of H-Statements referred to under sections 2 and 3.

H225 Highly flammable liquid and vapor.
## Annex

### 1. Short title of Exposure Scenario: Distribution

| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sector of use    | SU3: Industrial Manufacturing (all) |
| Process category | PROC1: Use in closed process, no likelihood of exposure |
|                  | PROC2: Use in closed, continuous process with occasional controlled exposure |
|                  | PROC3: Use in closed batch process (synthesis or formulation) |
|                  | PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises |
|                  | PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities |
|                  | PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities |
|                  | PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) |
|                  | PROC15: Use as laboratory reagent |
| Environmental release category | ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Industrial use of substances in closed systems |
| Further information | Distribution of Substance: loading (including marine vessel/barge, rail/road car IBC loading), and repacking including drums and small packs of substance, including its distribution and associated laboratory activities. |

### 2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of monomers for manufacture of thermoplastics, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Industrial use of substances in closed systems
Dimethyl Sulfide

Environment factors not influenced by risk management
Flow rate: 18,000 m³/d
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 300
Emission or Release Factor: Air: 0.01 %
Emission or Release Factor: Water: 0.001 %
Emission or Release Factor: Soil: 0.001 %

Technical conditions and measures / Organizational measures
Air: Treat air emission to provide the required removal efficiency of (%) (Effectiveness: > 99,9 %)
Water: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 99,9 %)
Remarks: Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant
Remarks: Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal
Remarks: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
Recovery Methods: External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Amount used
Remarks: Not applicable

3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Environment</th>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7</td>
<td>EUSES</td>
<td></td>
<td>Air</td>
<td>0.000204 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SDS Number: 100000013358
Dimethyl Sulfide

Freshwater sediment: 0.000264 µg/kg, 0.000001

Marine sediment: 0.000120 µg/kg, 0.000046

Agricultural soil: 0.0000234 µg/kg, 0.000004

ERC1: Manufacture of substances
ERC2: Formulation of preparations
ERC3: Formulation in materials
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC5: Industrial use resulting in inclusion into or onto a matrix
ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b: Industrial use of reactive processing aids
ERC6c: Industrial use of monomers for manufacture of thermoplastics
ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
ERC7: Industrial use of substances in closed systems

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.

RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.

1. Short title of Exposure Scenario: Formulation

Main User Groups: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use: SU3, SU 10: Industrial Manufacturing (all), Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process category: PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent

Environmental release category: ERC2: Formulation of preparations
Further information: Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials, transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC2: Formulation of preparations

Environment factors not influenced by risk management
- Flow rate: 18.000 m³/d
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 300
- Emission or Release Factor: Air: 2,5 %
- Emission or Release Factor: Water: 0,1 %
- Emission or Release Factor: Soil: 0,01 %

Technical conditions and measures / Organizational measures
- Air: Treat air emission to provide the required removal efficiency of %: (Effectiveness: 97,5 %)
- Water: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of %: (Effectiveness: > 99,9 %)
- Remarks: Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant
- Remarks: Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal
- Remarks: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
- Recovery Methods: External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting; Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent.
3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
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</thead>
<tbody>
<tr>
<td>ERC2</td>
<td>EUSES</td>
<td></td>
<td>Air</td>
<td></td>
<td>0.00185 mg/m³</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Freshwater</td>
<td></td>
<td>0.00093 mg/L</td>
<td>0.000325</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>0.00133 mg/L</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td></td>
<td>0.00131 mg/kg</td>
<td>0.0501</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>0.00187 mg/kg</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td></td>
<td>0.000428 mg/kg</td>
<td>0.0673</td>
</tr>
</tbody>
</table>

ERC2: Formulation of preparations

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1. RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.

1. Short title of Exposure Scenario: Use as an intermediate

Main User Groups: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Sector of use: SU3, SU8, SU9: Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals

Process category: PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/ large containers at dedicated facilities

PROC15: Use as laboratory reagent

Environmental release category: ERC6a: Industrial use resulting in manufacture of another
Dimethyl Sulfide

Further information: Use as an isolated intermediate not under strictly controlled conditions

2.1 Contributing scenario controlling environmental exposure for: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Environment factors not influenced by risk management
- Flow rate: 18,000 m³/d
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 300
- Emission or Release Factor: Air: 0.5 %
- Emission or Release Factor: Water: 0.05 %
- Emission or Release Factor: Soil: 0.1 %

Technical conditions and measures / Organizational measures
- Air: Treat air emission to provide the required removal efficiency of (%) (Effectiveness: 99.5 %)
- Water: Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) (Effectiveness: 99.9 %)
- Remarks: Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant
- Remarks: Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal
- Remarks: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
- Recovery Methods: External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/to vessels/large containers at dedicated facilities, Use as laboratory reagent

Amount used
- Remarks: Not applicable

SDS Number: 100000013358
3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartments</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC6a</td>
<td>EUSES</td>
<td>Air</td>
<td>0.000503 mg/m³</td>
<td></td>
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</tr>
<tr>
<td></td>
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<td>Freshwater</td>
<td>0.000767 mg/L</td>
<td></td>
<td></td>
<td>0.0265</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.0011 mg/L</td>
<td>0.0265</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>0.00108 mg/kg</td>
<td>0.0413</td>
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<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.00154 mg/kg</td>
<td>0.592</td>
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<tr>
<td></td>
<td></td>
<td>Agricultural soil</td>
<td>0.000331 mg/kg</td>
<td>0.0265</td>
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<td></td>
</tr>
</tbody>
</table>

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.

RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.

1. Short title of Exposure Scenario: **Use as an intermediate in pharma**

Main User Groups

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

SU3, SU8, SU9: Industrial Manufacturing (all), Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals

Process category

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15: Use as laboratory reagent

Environmental release category

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Further information

Use as an isolated intermediate not under strictly controlled conditions
2.1 Contributing scenario controlling environmental exposure for: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Environment factors not influenced by risk management
Flow rate : 18.000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure
Number of emission days per year : 300
Emission or Release Factor: Air : 0,5 %
Emission or Release Factor: Water : 0,1 %
Emission or Release Factor: Soil : 0,1 %

Technical conditions and measures / Organizational measures
Air : Treat air emission to provide the required removal efficiency of (%): (Effectiveness: 99,5 %)
Water : Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 99,9 %)
Remarks : Negligible wastewater emissions as process operates without water contact.

Conditions and measures related to municipal sewage treatment plant
Remarks : Not applicable as there is no release to wastewater.

Conditions and measures related to external treatment of waste for disposal
Remarks : External treatment and disposal of waste should comply with applicable local and/or national regulations.

Conditions and measures related to external recovery of waste
Recovery Methods : External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/to vessels/large containers at dedicated facilities, Use as laboratory reagent

Amount used
Remarks : Not applicable

3. Exposure estimation and reference to its source

Environment
Dimethyl Sulfide

Version 3.0

Revision Date 2020-04-28

### Contributing Scenario

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
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<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC6a</td>
<td>EUSES</td>
<td></td>
<td>Air</td>
<td>0,0000459 mg/m³</td>
<td>0,00482</td>
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<tr>
<td></td>
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<td></td>
<td>Freshwater</td>
<td>0,000140 mg/L</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>0,0002 mg/L</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>0,000196 mg/kg</td>
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<td>Marine sediment</td>
<td>0,000281 mg/kg</td>
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<td>Agricultural soil</td>
<td>0,0000589 mg/kg</td>
<td>0,00927</td>
<td></td>
</tr>
</tbody>
</table>

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1.

RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.

1. Short title of Exposure Scenario: **Injection as odorant in fuels – industrial**

Main User Groups: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Sector of use: SU3: Industrial Manufacturing (all)

Process category:

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15: Use as laboratory reagent

Environmental release category: ERC7: Industrial use of substances in closed systems

Further information:

covers injection as odourant in fuel and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

### 2.1 Contributing scenario controlling environmental exposure for: ERC7: Industrial use of substances in closed systems

Environment factors not influenced by risk management

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**Revision Date:** 2020-04-28

### Other given operational conditions affecting environmental exposure

- **Flow rate:** 18,000 m³/d
- **Dilution Factor (River):** 10
- **Dilution Factor (Coastal Areas):** 100

### Technical conditions and measures / Organizational measures

- **Air**
  - Treat air emission to provide the required removal efficiency of (%): (Effectiveness: 99.7 %)

- **Water**
  - Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: 99.9 %)

- **Remarks**
  - Negligible wastewater emissions as process operates without water contact.

### Conditions and measures related to municipal sewage treatment plant

- **Remarks**
  - Not applicable as there is no release to wastewater.

### Conditions and measures related to external treatment of waste for disposal

- **Remarks**
  - External treatment and disposal of waste should comply with applicable local and/or national regulations.

### Conditions and measures related to external recovery of waste

- **Recovery Methods**
  - External recovery and recycling of waste should comply with applicable local and/or national regulations.

### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/to vessels/ large containers at dedicated facilities, Use as laboratory reagent

### Amount used

- **Remarks**
  - Not applicable

### 3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Environment</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC7</td>
<td>EUSES</td>
<td>Air</td>
<td>0.000152 mg/m³</td>
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<td></td>
<td></td>
<td>Freshwater</td>
<td>0.00943 µg/L</td>
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<tr>
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<td>Marine water</td>
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<td></td>
<td></td>
<td>Freshwater sediment</td>
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<td></td>
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<td>Marine sediment</td>
<td>0.0000187</td>
<td>0.00718</td>
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</table>
4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterization ratios are expected to be less than 1. RMMs and OCs are described in adequate documentation at site level and efficiency is checked on a regular basis.