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

1.1 Product information

Product Name: Synfluid® PAO 2 cSt
Material: 1111737, 1111736, 1111732, 1082190, 1079695, 1079661, 1079651, 1079671

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index No.</th>
<th>Legal Entity</th>
<th>Registration number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Decene, Dimer, Hydrogenated</td>
<td>68649-11-6</td>
<td>500-228-5</td>
<td></td>
<td>Chevron Phillips Chemical Company LP</td>
<td>01-2119493069-28-0003</td>
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<tr>
<td>1-Decene, Dimer, Hydrogenated</td>
<td>68649-11-6</td>
<td>500-228-5</td>
<td></td>
<td>Chevron Phillips Chemicals International NV</td>
<td>01-2119493069-28-0002</td>
</tr>
</tbody>
</table>

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

Relevant Identified Uses Supported: Manufacture
Distribution
Use as an intermediate
Formulation
Use in coatings – industrial
Use in coatings – professional
Use in Coatings - Consumer
Lubricants - Industrial
Lubricants - Professional
Lubricants - Consumer
Metal working fluids / rolling oils - Industrial
Metal working fluids / rolling oils – Professional
Functional Fluids - Industrial
Functional Fluids - Professional
Functional Fluids - Consumer
Use in polymer production – industrial
Agrochemical uses
Agrochemical uses

1.3 Details of the supplier of the safety data sheet

SDS Number: 100000010948
2.1 Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Aspiration hazard, Category 1
H304:
May be fatal if swallowed and enters airways.

Acute toxicity, Category 4
H332:
Harmful if inhaled.

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

Hazard pictograms

Signal Word: Danger

Hazard Statements: H304
May be fatal if swallowed and enters airways.
Precautionary Statements:

**Prevention:**
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P271 Use only outdoors or in a well-ventilated area.

**Response:**
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 Call a POISON CENTER/doctor if you feel unwell.
P331 Do NOT induce vomiting.

Hazardous ingredients which must be listed on the label:
- 68649-11-6 1-Decene, Dimer, Hydrogenated

SECTION 3: Composition/information on ingredients

### 3.1 - 3.2 Substance or Mixture

**Synonyms:**
- Synfluid PAO 2 CST
- PAO 2 MIL
- Polyalphaolefin
- PAO

**Molecular formula:** UVCB

**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>
</tr>
</thead>
<tbody>
<tr>
<td>1-Decene, Dimer, Hydrogenated</td>
<td>68649-11-6 500-228-5</td>
<td>Acute Tox. 4; H332 Asp. Tox. 1; H304</td>
<td>100</td>
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</tbody>
</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. Do not leave the victim unattended. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

**If inhaled:** Move to fresh air. 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. If skin irritation persists, call a physician.

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. Do NOT induce vomiting. If symptoms persist, call a physician.

SECTION 5: Firefighting measures

Flash point: 160 °C (320 °F)
Method: Cleveland Open Cup

Autoignition temperature: 324 °C (615 °F)

5.1 Extinguishing media

Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting: Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray.

5.3 Advice for firefighters

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

Further information: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire and explosion protection: Normal measures for preventive fire protection.

Hazardous decomposition products: Carbon oxides.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation.

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...
6.3 Methods and materials for containment and cleaning up
Methods for cleaning up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

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
Handling
Advice on safe handling: Do not breathe vapors/dust. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion: Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements for storage areas and containers: Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

DNEL: End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Acute effects
Exposure time: 15 min
Value: 60 mg/m3

DNEL: End Use: Consumers
Routes of exposure: Inhalation
Potential health effects: Acute effects
Exposure time: 15 min
Value: 50 mg/m3

SDS Number:100000010948

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and lakes or drains inform respective authorities.

Reference to other sections: For personal protection see section 8. For disposal considerations see section 13.
**Synfluid® PAO 2 cSt**

**Exposure controls**

**Engineering measures**

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place 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 Dusts and Mists / P100. 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**

Safety glasses. Eye wash bottle with pure water.

**Skin and body protection**

Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Protective suit. Safety shoes.

**Hygiene measures**

General industrial hygiene practice.

**Protective measures**

Wear suitable protective equipment. When using do not eat, drink or smoke.

**SECTION 9: Physical and chemical properties**

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

**Appearance**

Physical state : Liquid  
Color : Clear, Colorless  
Odor : Odorless

**Safety data**

Flash point : 160 °C (320 °F)  
Method: Cleveland Open Cup  
Lower explosion limit : Not applicable
Upper explosion limit : Not applicable
Oxidizing properties : no
Autoignition temperature : 324 °C (615 °F)
Molecular formula : UVCB
Molecular weight : Varies
pH : Not applicable
Freezing point : -73 °C (-99 °F)
Boiling point/boiling range : 223 °C (433 °F)
Vapor pressure : 1,00 MMHG
                 at 75 °C (167 °F)
Relative density : 0,8
                 at 15,6 °C (60,1 °F)
Density : 795,7 g/l
Water solubility : Soluble in hydrocarbon solvents; insoluble in water.
Partition coefficient: n-octanol/water : No data available
Relative vapor density : 9
                       (Air = 1.0)
Evaporation rate : No data available

SECTION 10: Stability and reactivity

10.1
Reactivity : Stable at normal ambient temperature and pressure.

10.2
Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3
Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.
                       Further information: No decomposition if stored and applied as
Hazardous reactions: Reacts violently with water.

10.4 Conditions to avoid: No data available.

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

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Synfluid® PAO 2 cSt
Acute oral toxicity: LD50: >5000 mg/kg Species: Rat
Sex: male and female

Synfluid® PAO 2 cSt
Acute inhalation toxicity: LC50: 1,17 mg/l Exposure time: 4 h Species: Rat
Test atmosphere: dust/mist

Synfluid® PAO 2 cSt
Acute dermal toxicity: LD50: > 3 g/kg Species: Rabbit Sex: Not Specified

Synfluid® PAO 2 cSt
Skin irritation: No skin irritation

Synfluid® PAO 2 cSt
Eye irritation: No eye irritation

Synfluid® PAO 2 cSt
Sensitization: Did not cause sensitization on laboratory animals.

Synfluid® PAO 2 cSt
Aspiration toxicity: May be fatal if swallowed and enters airways. Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

CMR effects
1-Decene, Dimer, Hydrogenated: Carcinogenicity: Not classifiable as a human carcinogen. Mutagenicity: Contains no ingredient listed as a mutagen. Teratogenicity: No toxicity to reproduction. Reproductive toxicity: No toxicity to reproduction.

### SECTION 12: Ecological information

#### 12.1 Toxicity

**Ecotoxicity effects**

**Toxicity to fish**

1-Decene, Dimer, Hydrogenated: LL50: > 1.000 mg/l  
Exposure time: 96 h  
Species: Oncorhynchus mykiss (rainbow trout)  
semi-static test Test substance: yes  
The product has low solubility in the test medium. An aqueous dispersion was tested.

**Toxicity to daphnia and other aquatic invertebrates**

1-Decene, Dimer, Hydrogenated: EL50: > 1.000 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
static test Test substance: yes  
The product has low solubility in the test medium. An aqueous dispersion was tested.

**Toxicity to algae**

1-Decene, Dimer, Hydrogenated: EL50: > 1.000 mg/l  
Exposure time: 72 h  
Species: Scenedesmus capricornutum (fresh water algae)  
static test Test substance: yes  
The product has low solubility in the test medium. An aqueous dispersion was tested.

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

1-Decene, Dimer, Hydrogenated: NOEC: 125 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test substance: yes  
The product has low solubility in the test medium. An aqueous dispersion was tested.

#### 12.2 Persistence and degradability

Biodegradability: Expected to be inherently biodegradable.

#### 12.3 Bioaccumulative potential
Synfluid® PAO 2 cSt

12.4 Elimination information (persistence and degradability)

Mobility in soil

Mobility : No data available

12.5 Results of PBT and vPvB assessment

Results of PBT assessment
1-Decene, Dimer,
Hydrogenated : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Additional ecological information

Ecotoxicology Assessment

Short-term (acute) aquatic hazard
1-Decene, Dimer,
Hydrogenated : This material is not expected to be harmful to aquatic organisms.

Long-term (chronic) aquatic hazard
1-Decene, Dimer,
Hydrogenated : This material is not expected to be harmful to aquatic organisms.

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 : Do not dispose of waste into sewer. 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.

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)**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**
NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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 1 slightly water endangering
Description of the classification procedure for all materials, which are not named in the appendices 1 and 2, on the basis of R-sentence-classifications of the European dangerous
15.2 Chemical Safety Assessment

Components: 1-Decene, Dimer, Hydrogenated

Major Accident Hazard: 96/82/EC Update: 2003
Legislation: Directive 96/82/EC does not apply

Notification status
Europe REACH: On the inventory, or in compliance with the inventory
Switzerland CH INV: On the inventory, or in compliance with the inventory
United States of America (USA): On or in compliance with the active portion of the TSCA TSCA inventory
Canada DSL: All components of this product are on the Canadian DSL
Australia AICS: On the inventory, or in compliance with the inventory
New Zealand NZIoC: On the inventory, or in compliance with the inventory Notification number: HSR002606
Japan ENCS: On the inventory, or in compliance with the inventory Notification number: (6)-1109
Korea KECI: All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was included on CPChem’s notifications or if the Importer of Record themselves notified the substances. Notification number: KE-09501
Philippines PICCS: On the inventory, or in compliance with the inventory
China IECSC: On the inventory, or in compliance with the inventory
Taiwan TCSI: On the inventory, or in compliance with the inventory

SECTION 16: Other information

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

Further information
Legacy SDS Number: 3331

NSF H1, HX-1 Registered, meets USDA 1998 H1 Guidelines

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.

<table>
<thead>
<tr>
<th>Key or legend to abbreviations and acronyms used in the safety data sheet</th>
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</thead>
<tbody>
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<td>ACGIH</td>
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Full text of H-Statements referred to under sections 2 and 3.

H304 May be fatal if swallowed and enters airways.
H332 Harmful if inhaled.
## Annex

1. **Short title of Exposure Scenario:** Manufacture

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector of use</td>
<td>SU8, SU9, SU3: Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals, Industrial Manufacturing (all)</td>
</tr>
<tr>
<td>Process category</td>
<td>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</td>
</tr>
<tr>
<td>Environmental release category</td>
<td>ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles</td>
</tr>
</tbody>
</table>

### 2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles

**Environment factors not influenced by risk management**

| Remarks | Not applicable |

**Technical conditions and measures / Organizational measures**

| Remarks | A quantitative risk assessment is not required for the environment. |

### 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**

SDS Number: 100000010948
**Synfluid® PAO 2 cSt**

**Version 1.10**

**Revision Date** 2019-10-15

### Remarks
- Not applicable

**Organizational measures to prevent /limit releases, dispersion and exposure**
- Do not ingest. If swallowed then seek immediate medical assistance.

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

**Remarks:** Not applicable

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

- Not applicable

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

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector of use</td>
<td>SU3: Industrial Manufacturing (all)</td>
</tr>
<tr>
<td>Process category</td>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
</tr>
<tr>
<td></td>
<td>PROC2: Use in closed, continuous process with occasional controlled exposure</td>
</tr>
<tr>
<td></td>
<td>PROC3: Use in closed batch process (synthesis or formulation)</td>
</tr>
<tr>
<td></td>
<td>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</td>
</tr>
<tr>
<td></td>
<td>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</td>
</tr>
<tr>
<td></td>
<td>PROC15: Use as laboratory reagent</td>
</tr>
</tbody>
</table>

| 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 |

#### 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
**Synfluid® PAO 2 cSt**

**Version 1.10**

**Revision Date 2019-10-15**

**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**

**Environment factors not influenced by risk management**

| Remarks            | Not applicable |

**Technical conditions and measures / Organizational measures**

| Remarks                                                  | A quantitative risk assessment is not required for the environment. |

**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 |

**Organizational measures to prevent /limit releases, dispersion and exposure**

Do not ingest. If swallowed then seek immediate medical assistance.

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

| Remarks | Not applicable |

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

| Remarks | Not applicable |

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 |

**SDS Number:** 100000010948 16/49
### 2.1 Contributing scenario controlling environmental exposure for: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

**Environmental release category**
- ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

**Environment factors not influenced by risk management**
- Remarks: Not applicable

**Technical conditions and measures / Organizational measures**
- Remarks: A quantitative risk assessment is not required for the environment.

### 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

**Organizational measures to prevent /limit releases, dispersion and exposure**
- Do not ingest. If swallowed then seek immediate medical assistance.

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

**Remarks:** Not applicable
### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Not applicable

<table>
<thead>
<tr>
<th>Short title of Exposure Scenario: <strong>Formulation</strong></th>
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<tbody>
<tr>
<td><strong>Main User Groups</strong></td>
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<td>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</td>
</tr>
<tr>
<td><strong>Sector of use</strong></td>
</tr>
<tr>
<td>SU3, SU 10: Industrial Manufacturing (all), Formulation [mixing] of preparations and/or re-packaging (excluding alloys)</td>
</tr>
<tr>
<td><strong>Process category</strong></td>
</tr>
<tr>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
</tr>
<tr>
<td>PROC2: Use in closed, continuous process with occasional controlled exposure</td>
</tr>
<tr>
<td>PROC3: Use in closed batch process (synthesis or formulation)</td>
</tr>
<tr>
<td>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</td>
</tr>
<tr>
<td>PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;</td>
</tr>
<tr>
<td>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</td>
</tr>
<tr>
<td>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</td>
</tr>
<tr>
<td>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</td>
</tr>
<tr>
<td>PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;</td>
</tr>
<tr>
<td>PROC15: Use as laboratory reagent</td>
</tr>
<tr>
<td><strong>Environmental release category</strong></td>
</tr>
<tr>
<td>ERC2: Formulation of preparations</td>
</tr>
</tbody>
</table>

#### 2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

<table>
<thead>
<tr>
<th><strong>Product characteristics</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks Substance is a unique structure.</td>
</tr>
<tr>
<td><strong>Remarks</strong> Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Amount used</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Frequency and duration of use</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other operational conditions affecting workers exposure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

**Organizational measures to prevent/limit releases, dispersion and exposure**

Do not ingest. If swallowed then seek immediate medical assistance.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Wear suitable coveralls to prevent exposure to the skin.

2.2 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;

Product characteristics
Remarks
Substance is a unique structure.

Remarks
Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks
Not applicable

Frequency and duration of use
Remarks
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks
Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide extraction ventilation at points where emissions occur.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Wear suitable coveralls to prevent exposure to the skin.

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

Product characteristics
Remarks
Substance is a unique structure.

Frequency and duration of use
Continuous exposure
This substance only poses an acute risk, therefore a general population DNEL has not been derived, and an assessment of the risk from indirect exposure of man via the environment is not required.

Environment factors not influenced by risk management
Remarks
Not applicable

Technical conditions and measures / Organizational measures
Remarks
A quantitative risk assessment is not required for the environment.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROC14, 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, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Production of mixtures or articles by tableting, compression, extrusion, pelletization; Industrial setting;, Use as laboratory reagent

Product characteristics
Remarks
Substance is a unique structure.

Remarks
Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks
Not applicable

Frequency and duration of use
Remarks
Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks
Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

3. Exposure estimation and reference to its source

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC4, CS16, CS55, CS56</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m3</td>
<td>0,9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>6,86 mg/kg/d</td>
<td>0,1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,96</td>
<td></td>
</tr>
<tr>
<td>PROC5, CS30</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>0,5 mg/m3</td>
<td>0,1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,0685 mg/kg/d</td>
<td>0,0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,09</td>
<td></td>
</tr>
</tbody>
</table>

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
CS16: General exposures (open systems)
CS55: Batch process
CS56: with sample collection
PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;
CS30: Mixing operations (open systems)
Remarks: Not applicable

### 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 DNELs and the resulting risk characterisation ratios are expected to be less than 1
Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. **Short title of Exposure Scenario: Use in coatings – industrial**

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector of use</td>
<td>SU3: Industrial Manufacturing (all)</td>
</tr>
<tr>
<td>Process category</td>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
</tr>
<tr>
<td></td>
<td>PROC2: Use in closed, continuous process with occasional controlled exposure</td>
</tr>
<tr>
<td></td>
<td>PROC3: Use in closed batch process (synthesis or formulation)</td>
</tr>
<tr>
<td></td>
<td>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</td>
</tr>
<tr>
<td></td>
<td>PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;</td>
</tr>
<tr>
<td></td>
<td>PROC7: Industrial spraying</td>
</tr>
<tr>
<td></td>
<td>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</td>
</tr>
<tr>
<td></td>
<td>PROC10: Roller application or brushing</td>
</tr>
<tr>
<td></td>
<td>PROC13: Treatment of articles by dipping and pouring</td>
</tr>
<tr>
<td></td>
<td>PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;</td>
</tr>
<tr>
<td></td>
<td>PROC15: Use as laboratory reagent</td>
</tr>
</tbody>
</table>

| Environmental release category | ERC4: Industrial use of processing aids in processes and products, not becoming part of articles |

#### 2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Environment factors not influenced by risk management
Remarks: Not applicable

**Technical conditions and measures / Organizational measures**

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### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, 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), Roller application or brushing, Treatment of articles by dipping and pouring, Production of mixtures or articles by tablettting, compression, extrusion, pelletization; Industrial setting; Use as laboratory reagent

### Product characteristics

**Remarks**

Liquid, vapour pressure < 0.5 kPa at STP

### Amount used

**Remarks**

Not applicable

### Frequency and duration of use

**Remarks**

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

### Other operational conditions affecting workers exposure

**Remarks**

Assumes use at not more than 20°C above ambient temperature, unless stated differently, Assumes a good basic standard of occupational hygiene is implemented.

### Organizational measures to prevent /limit releases, dispersion and exposure

Do not ingest. If swallowed then seek immediate medical assistance.

### 2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

**Product characteristics**

**Remarks**

Liquid, vapour pressure < 0.5 kPa at STP

**Amount used**

**Remarks**

Not applicable

**Frequency and duration of use**

**Remarks**

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

**Other operational conditions affecting workers exposure**

**Remarks**

Assumes use at not more than 20°C above ambient temperature, unless stated differently, Assumes a good basic standard of occupational hygiene is implemented.
Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Ensure operation is undertaken outdoors. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organizational measures to prevent /limit releases, dispersion and exposure

Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training. Wear a full face respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation and reference to its source

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Value type</th>
<th>Specific conditions</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC7, CS97, ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC7, CS97, ECETOC TRA Modified</td>
<td>Worker – dermal, long-term – systemic</td>
<td>2,143 mg/kg/d</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC7, CS34, CS10, ECETOC TRA Modified</td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC7, CS34, CS10, ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1,4 mg/m³</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC7, CS34, CS10, ECETOC TRA Modified</td>
<td>Worker – dermal, long-term – systemic Combined routes</td>
<td>4,286 mg/kg/d</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Not applicable
PROC7: Industrial spraying
CS97: Spraying (automatic/robotic)
PROC7: Industrial spraying
CS34: Manual
CS10: Spraying

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 DNELs and the resulting risk characterisation ratios are expected to be less than 1
Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. Short title of Exposure Scenario: **Use in coatings – professional**

Main User Groups : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category : PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure

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| 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 |
| PROC10: Roller application or brushing |
| PROC11: Non industrial spraying |
| PROC13: Treatment of articles by dipping and pouring |
| PROC15: Use as laboratory reagent |
| PROC19: Hand-mixing with intimate contact and only PPE available |

**Environmental release category**: ERC8a, ERC8d: Wide disperse indoor use of processing aids in open systems, Wide disperse outdoor use of processing aids in open systems

**2.1 Contributing scenario controlling environmental exposure for:**

**ERC8a, ERC8d:** Wide disperse indoor use of processing aids in open systems, Wide disperse outdoor use of processing aids in open systems

**Environment factors not influenced by risk management**

**Remarks**: Not applicable

**Technical conditions and measures / Organizational measures**

**Remarks**: A quantitative risk assessment is not required for the environment.

**2.2 Contributing scenario controlling worker exposure for:**

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC13, PROC15, PROC19: 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, Roller application or brushing, Treatment of articles by dipping and pouring, Use as laboratory reagent, Hand-mixing with intimate contact and only PPE available

**Product characteristics**

**Remarks**: Liquid, vapour pressure < 0.5 kPa at STP

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Amount used
Remarks: Not applicable

Frequency and duration of use
Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks: Not applicable

Frequency and duration of use
Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide extraction ventilation at points where emissions occur. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Ensure operation is undertaken outdoors.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance. Avoid carrying out activities involving exposure for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC11, CS34, CS10</td>
<td>ECETOC TRA Modified</td>
<td>Indoor</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>2.8 mg/m³</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0.4286 mg/kg/d</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Worker – long-term –</td>
<td></td>
<td>0.5</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>PROC11, CS34, CS10</th>
<th>ECETOC TRA Modified</th>
<th>Outdoor</th>
<th>Worker – inhalation, long-term – systemic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,4 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0,3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Worker – dermal, long-term – systemic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21,428 mg/kg/d</td>
</tr>
<tr>
<td></td>
<td>0,2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Worker – long-term – systemic Combined routes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0,46</td>
</tr>
</tbody>
</table>

**Remarks:** Not applicable

PROC11: Non industrial spraying
CS34: Manual
CS10: Spraying

PROC11: Non industrial spraying
CS34: Manual
CS10: Spraying

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 DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. **Short title of Exposure Scenario:** *Use in Coatings - Consumer*

**Main User Groups:** SU 21: Consumer uses: Private households (= general public = consumers)

**Sector of use:** SU 21: Consumer uses: Private households (= general public = consumers)

**Product category:**
- PC1: Adhesives, sealants
- PC4: Anti-Freeze and de-icing products
- PC8: Biocidal products (e.g. Disinfectants, pest control)
- PC9a: Coatings and paints, thinners, paint removers
- PC9b: Fillers, putties, plasters, modelling clay
- PC9c: Finger paints
- PC15: Non-metal-surface treatment products
- PC18: Ink and toners
- PC23: Leather tanning, dye, finishing, impregnation and care products
- PC24: Lubricants, greases, release products
- PC31: Polishes and wax blends
- PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids

**Environmental release category:** ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 **Contributing scenario controlling environmental exposure for:** ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
### Environment factors not influenced by risk management

**Remarks**: Not applicable

### Technical conditions and measures / Organizational measures

**Remarks**: A quantitative risk assessment is not required for the environment.

### 2.2 Contributing scenario controlling consumer exposure for: PC1, PC4, PC8, PC9a, PC9b, PC15, PC18, PC23, PC24, PC31, PC34: Adhesives, sealants, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Coatings and paints, thinners, paint removers, Fillers, putties, plasters, modelling clay, Non-metal-surface treatment products, Ink and toners, Leather tanning, dye, finishing, impregnation and care products, Lubricants, greases, release products, Polishes and wax blends, Textile dyes, finishing and impregnating products; including bleaches and other processing aids

### Amount used

**Remarks**: Not applicable

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

**Remarks**: Not applicable

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

Not applicable

1. Short title of Exposure Scenario: **Lubricants - 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) |
| | PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises |
| | PROC7: Industrial spraying |
| | 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)
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process
PROC18: Greasing at high energy conditions

Environmental release category: ERC4, ERC7: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC7: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of substances in closed systems

Technical conditions and measures / Organizational measures
Remarks: A quantitative risk assessment is not required for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17: 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). Roller application or brushing. Treatment of articles by dipping and pouring. Lubrication at high energy conditions and in partly open process.

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks: Not applicable

Frequency and duration of use
Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes a good basic standard of occupational hygiene is implemented. Assumes use at not more than 20°C above ambient temperature, unless stated differently.

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Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

Product characteristics
Remarks : Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures
Restrict area of openings to equipment., Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance., Automate activity where possible.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Wear suitable coveralls to prevent exposure to the skin.

2.2 Contributing scenario controlling worker exposure for: PROC18: Greasing at high energy conditions

Product characteristics
Remarks : Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks : Not applicable

Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks : Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures
Restrict area of openings to equipment., Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
3. Exposure estimation and reference to its source

**Workers/Consumers**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC7, CS10</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>2,143 mg/kg/d</td>
<td>0,0</td>
<td></td>
</tr>
<tr>
<td>PROC18, CS17</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m³</td>
<td>0,2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,6855 mg/kg/d</td>
<td>0,0</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Not applicable
PROC7: Industrial spraying
CS10: Spraying
PROC18: Greasing at high energy conditions
CS17: Operation and lubrication of high energy open equipment

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 DNELs and the resulting risk characterisation ratios are expected to be less than 1

Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. Short title of Exposure Scenario: **Lubricants - Professional**

Main User Groups : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Sector of use : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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

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## PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- **PROC10**: Roller application or brushing
- **PROC11**: Non industrial spraying
- **PROC13**: Treatment of articles by dipping and pouring
- **PROC17**: Lubrication at high energy conditions and in partly open process
- **PROC18**: Greasing at high energy conditions
- **PROC20**: Heat and pressure transfer fluids in dispersive, professional use but closed systems

### Environmental release category:
- ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

#### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b:
Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

### Environment factors not influenced by risk management

#### Remarks:
Not applicable

### Technical conditions and measures / Organizational measures

#### Remarks:
A quantitative risk assessment is not required for the environment.

#### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC20:
- 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), Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Heat and pressure transfer fluids in dispersive, professional use but closed systems

### Product characteristics

#### Remarks:
Liquid, vapour pressure < 0.5 kPa at STP

### Amount used

#### Remarks:
Not applicable

### Frequency and duration of use

#### Remarks:
Covers daily exposures up to 8 hours (unless stated)

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Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

2.2 Contributing scenario controlling worker exposure for: PROC17, PROC18:
Lubrication at high energy conditions and in partly open process, Greasing at high energy conditions

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks: Not applicable

Frequency and duration of use
Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC17, CS17</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,9</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>0,2743 mg/kg/d</td>
<td>0,0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,9</td>
<td></td>
</tr>
<tr>
<td>PROC17, CS17</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m³</td>
<td>0,90</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>1,3715 mg/kg/d</td>
<td>0,0</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Exposure Scenario</th>
<th>Risk Characterisation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker – long-term – systemic Combined routes</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>Worker – inhalation, long-term – systemic</td>
<td>5 mg/m3</td>
<td>0.9</td>
</tr>
<tr>
<td>Worker – dermal, long-term – systemic</td>
<td>0.6855 mg/kg/d</td>
<td>0.0</td>
</tr>
<tr>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0.90</td>
</tr>
</tbody>
</table>

**Remarks:** Not applicable

PROC17: Lubrication at high energy conditions and in partly open process
CS17: Operation and lubrication of high energy open equipment

PROC18: Greasing at high energy conditions
CS17: Operation and lubrication of high energy open equipment

### 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 DNELs and the resulting risk characterisation ratios are expected to be less than 1. Confirm that RMMs and OCs are as described or of equivalent efficiency.

**1. Short title of Exposure Scenario:** **Lubricants - Consumer**

- **Main User Groups**: SU 21: Consumer uses: Private households (= general public = consumers)
- **Sector of use**: SU 21: Consumer uses: Private households (= general public = consumers)
- **Product category**: PC1: Adhesives, sealants
  - PC24: Lubricants, greases, release products
  - PC31: Polishes and wax blends
- **Environmental release category**: ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

**2.1 Contributing scenario controlling environmental exposure for:**

ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

**Product characteristics**

**Technical conditions and measures / Organizational measures**

Remarks: A quantitative risk assessment is not required for the
## 2.2 Contributing scenario controlling consumer exposure for: PC1, PC31: Adhesives, sealants, Polishes and wax blends

### Product characteristics
- **Physical Form (at time of use):** Liquid substance

### Frequency and duration of use
- **Remarks:** Unless otherwise stated, covers use frequency up to 0.02 times per day., covers exposure up to 0.2 hours per event.

### Other given operational conditions affecting consumers exposure
- **Remarks:** Unless otherwise stated assumes use at ambient temperatures, assumes use in a 20 cubic meter room, Assumes use with typical ventilation.

### Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)
- **Remarks:** No specific Risk Management Measures identified beyond those Operational Conditions stated.

## 2.2 Contributing scenario controlling consumer exposure for: PC24: Lubricants, greases, release products

### Product characteristics
- **Physical Form (at time of use):** Liquid substance

### Frequency and duration of use
- **Remarks:** Unless otherwise stated, covers use frequency up to 0.02 times per day., covers exposure up to 0.2 hours per event.

### Other given operational conditions affecting consumers exposure
- **Remarks:** Unless otherwise stated assumes use at ambient temperatures, assumes use in a 20 cubic meter room, Assumes use with typical ventilation.

### Conditions and measures related to protection of consumer (e.g. behavioral advice, personal protection and hygiene)
- **Remarks:** No specific Risk Management Measures identified beyond those Operational Conditions stated.
3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Workers/Consumers</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC24</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>7500 mg/m³</td>
<td>0,00</td>
<td></td>
</tr>
<tr>
<td>PC24</td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>721 mg/kg/d</td>
<td>0,07</td>
<td></td>
</tr>
<tr>
<td>PC24</td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td></td>
<td>0,00</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Not applicable
PC24: Lubricants, greases, release products

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 DNELs and the resulting risk characterisation ratios are expected to be less than 1
Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. Short title of Exposure Scenario: Metal working fluids / rolling oils - 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)
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;
PROC7: Industrial spraying
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)
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process

Environmental release category: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
### 2.1 Contributing scenario controlling environmental exposure for: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

<table>
<thead>
<tr>
<th>Environment factors not influenced by risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical conditions and measures / Organizational measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : A quantitative risk assessment is not required for the environment.</td>
</tr>
</tbody>
</table>

#### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC17: 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), Treatment of articles by dipping and pouring, Lubrication at high energy conditions and in partly open process

<table>
<thead>
<tr>
<th>Product characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

**Organizational measures to prevent /limit releases, dispersion and exposure**
- Do not ingest. If swallowed then seek immediate medical assistance.

### 2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

<table>
<thead>
<tr>
<th>Product characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks : Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
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Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374), coverall and eye protection. Wear a respirator conforming to EN140 with Type A filter or better.

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks: Not applicable

Frequency and duration of use
Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour)

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC7, CS10</td>
<td>ECETOC TRA Modified</td>
<td></td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1 mg/m3</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Worker – dermal, long-</td>
<td>2.143 mg/kg/d</td>
<td>0.0</td>
</tr>
</tbody>
</table>

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Remarks: Not applicable
PROC7: Industrial spraying
CS10: Spraying
PROC10: Roller application or brushing
CS13: Manual roller application or brushing.

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 DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. Short title of Exposure Scenario: Metal working fluids / rolling oils – Professional

Main User Groups: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process

Environmental release category: ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d,
### ERC9a, ERC9b
Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

#### Environment factors not influenced by risk management
**Remarks**: Not applicable

#### Technical conditions and measures / Organizational measures
**Remarks**: A quantitative risk assessment is not required for the environment.

#### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC10, PROC13
- Use in closed process, no likelihood of exposure
- Use in closed, continuous process with occasional controlled exposure
- 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), Roller application or brushing, Treatment of articles by dipping and pouring

#### Product characteristics
**Remarks**: Liquid, vapour pressure < 0.5 kPa at STP

#### Amount used
**Remarks**: Not applicable

#### Frequency and duration of use
**Remarks**: Covers daily exposures up to 8 hours (unless stated differently)

#### Other operational conditions affecting workers exposure
**Remarks**: Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Assumes a good basic standard of occupational hygiene is implemented.

#### Organizational measures to prevent/limit releases, dispersion and exposure
- Do not ingest. If swallowed then seek immediate medical assistance.

#### 2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

#### Product characteristics
**Remarks**: Liquid, vapour pressure < 0.5 kPa at STP

#### Amount used
**Remarks**: Not applicable

#### Frequency and duration of use
**Remarks**: Covers daily exposures up to 8 hours (unless stated differently)
Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Ensure operation is undertaken outdoors. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.

2.2 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions and in partly open process

Product characteristics
Remarks: Liquid, vapour pressure < 0.5 kPa at STP

Amount used
Remarks: Not applicable

Frequency and duration of use
Remarks: Covers daily exposures up to 8 hours (unless stated differently)

Other operational conditions affecting workers exposure
Remarks: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented.

Technical conditions and measures
Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC11, CS10</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1,4 mg/m³</td>
<td>0,3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term</td>
<td>21,428 mg/kg/d</td>
<td>0,2</td>
<td></td>
</tr>
</tbody>
</table>

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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 DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. Short title of Exposure Scenario: Functional Fluids - 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)
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)

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

Environment factors not influenced by risk management
Remarks: Not applicable

Technical conditions and measures / Organizational measures
Remarks: A quantitative risk assessment is not required for the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: 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)

Amount used
Remarks: Not applicable

Organizational measures to prevent / limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

3. Exposure estimation and reference to its source
Remarks: Not applicable

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario
Not applicable

1. Short title of Exposure Scenario: Functional Fluids - Professional

Main User Groups: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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

SDS Number: 100000010948
### Environmental release category
- **PROC9**: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- **PROC20**: Heat and pressure transfer fluids in dispersive, professional use but closed systems

**Environmental release category**: ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

**Environment factors not influenced by risk management**
- **Remarks**: Not applicable

**Technical conditions and measures / Organizational measures**
- **Remarks**: A quantitative risk assessment is not required for the environment.

### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC9, PROC20: 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 into small containers (dedicated filling line, including weighing), Heat and pressure transfer fluids in dispersive, professional use but closed systems

**Amount used**
- **Remarks**: Not applicable

### 3. Exposure estimation and reference to its source
- **Remarks**: Not applicable

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario
- **Not applicable**

1. **Short title of Exposure Scenario**: Functional Fluids - Consumer
**Synfluid® PAO 2 cSt**

**Version 1.10**  
**Revision Date 2019-10-15**

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 21: Consumer uses: Private households (= general public = consumers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector of use</td>
<td>SU 21: Consumer uses: Private households (= general public = consumers)</td>
</tr>
</tbody>
</table>
| Product category | PC16: Heat transfer fluids  
|                  | PC17: Hydraulic fluids |
| Environmental release category | ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems |

**2.1 Contributing scenario controlling environmental exposure for:**

**ERC9a, ERC9b:** Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

**Environment factors not influenced by risk management**

Remarks: Not applicable

**Technical conditions and measures / Organizational measures**

Remarks: A quantitative risk assessment is not required for the environment.

**2.2 Contributing scenario controlling consumer exposure for:**

**PC16, PC17:** Heat transfer fluids, Hydraulic fluids

**Amount used**

Remarks: Not applicable

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

Remarks: Not applicable

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

Not applicable

1. **Short title of Exposure Scenario:** Use in polymer production – industrial

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites</th>
</tr>
</thead>
</table>

SDS Number: 100000010948  
44/49
## Sector of use
- **SU 10, SU3**: Formulation [mixing] of preparations and/or re-packaging (excluding alloys), 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
- **PROC5**: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact)
- **PROC6**: Calendering operations
- **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
- **PROC14**: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;
- **PROC15**: Use as laboratory reagent

## Environmental release category
- **ERC4, ERC6c**: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of monomers for manufacture of thermoplastics

### 2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6c
Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of monomers for manufacture of thermoplastics

### Environment factors not influenced by risk management
- **Remarks**: Not applicable

### Technical conditions and measures / Organizational measures
- **Remarks**: A quantitative risk assessment is not required for the environment.

### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC14, 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, Calendering operations, 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, Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting, Use as laboratory reagent
**Organizational measures to prevent /limit releases, dispersion and exposure**

Do not ingest. If swallowed then seek immediate medical assistance.

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

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Not applicable</th>
</tr>
</thead>
</table>

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

- **Not applicable**
- **1. Short title of Exposure Scenario**: Agrochemical uses

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)</th>
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<tr>
<td>Sector of use</td>
<td>SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)</td>
</tr>
<tr>
<td>Process category</td>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
</tr>
<tr>
<td></td>
<td>PROC2: Use in closed, continuous process with occasional controlled exposure</td>
</tr>
<tr>
<td></td>
<td>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</td>
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<tr>
<td></td>
<td>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>PROC11: Non industrial spraying</td>
</tr>
<tr>
<td></td>
<td>PROC13: Treatment of articles by dipping and pouring</td>
</tr>
<tr>
<td>Environmental release category</td>
<td>ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems</td>
</tr>
</tbody>
</table>

2.1 **Contributing scenario controlling environmental exposure for**: ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

<table>
<thead>
<tr>
<th>Environment factors not influenced by risk management</th>
<th>Remarks</th>
<th>Not applicable</th>
</tr>
</thead>
</table>

| Technical conditions and measures / Organizational measures | Remarks | A quantitative risk assessment is not required for the environment. |
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC13: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, 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, Treatment of articles by dipping and pouring

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amount used</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Covers daily exposures up to 8 hours (unless stated differently)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Liquid, vapour pressure &lt; 0.5 kPa at STP</td>
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</tbody>
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<table>
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<tr>
<th>Amount used</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not applicable</td>
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<tbody>
<tr>
<td></td>
<td>Assumes use at not more than 20°C above ambient temperature, unless stated differently., Assumes a good basic standard of occupational hygiene is implemented.</td>
</tr>
</tbody>
</table>

Technical conditions and measures
Ensure operation is undertaken outdoors., Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour)

Organizational measures to prevent /limit releases, dispersion and exposure
Do not ingest. If swallowed then seek immediate medical assistance.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Wear chemically resistant gloves (tested to EN374) in combination with specific activity training., Wear a respirator conforming to EN140 with Type A filter or better.
3. Exposure estimation and reference to its source

Workers/Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value type</th>
<th>Level of Exposure</th>
<th>Risk characterization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC11, CS24</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>1.4 mg/m³</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>21,428 mg/kg/d</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC11, CS25</td>
<td>ECETOC TRA Modified</td>
<td>Worker – inhalation, long-term – systemic</td>
<td>0.6 mg/m³</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – dermal, long-term – systemic</td>
<td>21,428 mg/kg/d</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Worker – long-term – systemic Combined routes</td>
<td>0.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Not applicable
PROC11: Non industrial spraying
CS24: Spraying/fogging by manual application
PROC11: Non industrial spraying
CS25: Spraying/fogging by machine application

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 DNELs and the resulting risk characterisation ratios are expected to be less than 1.

Confirm that RMMs and OCs are as described or of equivalent efficiency.

1. Short title of Exposure Scenario: **Agrochemical uses**

- **Main User Groups**: SU 21: Consumer uses: Private households (= general public = consumers)
- **Sector of use**: SU 21: Consumer uses: Private households (= general public = consumers)
- **Product category**: PC12: Fertilizers, PC27: Plant protection products
- **Environmental release category**: ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8d: Wide dispersive outdoor use of processing aids in open systems
**Technical conditions and measures / Organizational measures**

Remarks: A quantitative risk assessment is not required for the environment.

### 2.2 Contributing scenario controlling consumer exposure for: PC12, PC27: Fertilizers, Plant protection products

**Amount used**

Remarks: Not applicable

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

Remarks: Not applicable

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

Not applicable