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

1.1. Product identifier

Trade name
PHASETREAT 6082

Material number: 200693

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

Relevant identified uses of the substance or mixture
Industry sector : Oilfield
Type of use : Demulsifier
Exposure scenarios: see annex

1.3. Details of the supplier of the safety data sheet

Identification of the company
Clariant Produkte (Deutschland) GmbH
65926 Frankfurt am Main
Telephone no. : +49 69 305 18000

Information about the substance/mixture
BU Oil & Mining Services
Product Stewardship
e-mail: SDS.Europe@clariant.com

1.4. Emergency telephone number

00800-5121 5121  (24 h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
Acute toxicity, Category 4 H332: Harmful if inhaled.
Skin irritation, Category 2 H315: Causes skin irritation.
Eye irritation, Category 2 H319: Causes serious eye irritation.
Specific target organ toxicity - single exposure, Category 3, Respiratory system H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms :
Signal word : Warning

Hazard statements : H315 Causes skin irritation.
                   H319 Causes serious eye irritation.
                   H332 Harmful if inhaled.
                   H335 May cause respiratory irritation.

Precautionary statements :

Prevention:
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves.

Response:
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

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

Hazardous components which must be listed on the label:
2-Ethylhexanol

2.3 Other hazards

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

No additional hazards are known except those derived from the labelling.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexanol</td>
<td>104-76-7</td>
<td>203-234-3</td>
<td>Eye Irrit. 2; H319</td>
<td>=60 - &lt;= 100</td>
</tr>
<tr>
<td></td>
<td>01-2119487289-20</td>
<td>01-2119487289-20-0000</td>
<td>Skin Irrit. 2; H315</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01-2119487289-20-0003</td>
<td>01-2119487289-20-XXXX</td>
<td>Acute Tox. 4; H332</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H335</td>
<td></td>
</tr>
<tr>
<td>Polyadduct of EO-PO-block polymer and bisphenol-A-</td>
<td>68123-18-2</td>
<td></td>
<td>Aquatic Chronic 3; H412</td>
<td>&gt;= 15 - &lt;= 25</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Remove/Take off immediately all contaminated clothing.

If inhaled: Remove to fresh air. Get medical attention if symptoms occur.

In case of skin contact: Rinse skin immediately with copious amounts of water. Immediately remove contaminated clothing. Consult a physician.

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.

If swallowed: Rinse mouth with water. If conscious, give the victim plenty of water to drink. Do NOT induce vomiting. In case of unconsciousness do not induce vomiting or give anything by mouth. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Abdominal pain 
Vomiting

Risks: No additional risks are known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide (CO2) 
Dry chemical 
Water mist

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Carbon dioxide (CO2) 
Carbon monoxide 
Nitrogen oxides (NOx)
5.3 Advice for firefighters

Special protective equipment for firefighters: Full protective suit. In case of fire: Wear respiratory protection.

Further information: Cool endangered containers with water spray jet. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Ensure adequate ventilation. Wear suitable protective equipment. Wear respiratory protection.

6.2 Environmental precautions

Environmental precautions: The product should not be allowed to enter drains, water courses or the soil. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Soak up with inert absorbent material. Dispose of absorbed material in accordance with the regulations. Rinse away rest with plenty of water.

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling: Avoid spilling, spraying or splashing. Have eyewash bottle in readiness. With Local Exhaust Ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off immediately all contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Keep only in the original container.
Further information on storage conditions: Keep containers tightly closed in a cool, well-ventilated place.

Advice on common storage: Do not store with strong oxidizing agents.

### 7.3 Specific end use(s)
Specific use(s): No further recommendations.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Ethylhexanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>106.4 mg/m³</td>
</tr>
<tr>
<td>CAS-No.: 104-76-7</td>
<td></td>
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<td></td>
<td></td>
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</table>

Remarks: DNEL

<table>
<thead>
<tr>
<th></th>
<th>Workers</th>
<th>Dermal</th>
<th>Long-term systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23 mg/kg bw/day</td>
</tr>
</tbody>
</table>

Remarks: DNEL

<table>
<thead>
<tr>
<th></th>
<th>Workers</th>
<th>Inhalation</th>
<th>Long-term systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>53.2 mg/m³</td>
</tr>
</tbody>
</table>

Remarks: DNEL

<table>
<thead>
<tr>
<th></th>
<th>General population</th>
<th>Inhalation</th>
<th>Acute local effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>53.2 mg/m³</td>
</tr>
</tbody>
</table>

Remarks: DNEL

<table>
<thead>
<tr>
<th></th>
<th>General population</th>
<th>Dermal</th>
<th>Long-term systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.4 mg/kg bw/day</td>
</tr>
</tbody>
</table>

Remarks: DNEL

<table>
<thead>
<tr>
<th></th>
<th>General population</th>
<th>Inhalation</th>
<th>Long-term systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.3 mg/m³</td>
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</tbody>
</table>

Remarks: DNEL

<table>
<thead>
<tr>
<th></th>
<th>General population</th>
<th>Oral</th>
<th>Long-term systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.1 mg/kg bw/day</td>
</tr>
</tbody>
</table>

Remarks: DNEL

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>2-Ethylhexanol</td>
<td>Fresh water</td>
<td>0.017 mg/l</td>
</tr>
<tr>
<td>CAS-No.: 104-76-7</td>
<td>salt water</td>
<td>0.0017 mg/l</td>
</tr>
<tr>
<td></td>
<td>Water (intermittent release)</td>
<td>0.17 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>10 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>0.28 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0.028 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>0.047 mg/kg dry</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

**Engineering measures**
Provide adequate ventilation.

**Personal protective equipment**

| Eye protection | Tightly fitting safety goggles
|                | Face-shield

**Hand protection**

Remarks: Neoprene gloves. Wear protective gloves. Viton (R) PVC or other plastic material gloves. These types of protective gloves are offered by various manufacturers. Please note the manufacturers’ detailed statements, especially about the minimum thickness and the minimum breakthrough time. Consider also the particular working conditions under which the gloves are being used.

**Skin and body protection**

: Wear suitable protective clothing.

**Respiratory protection**

: In case of inadequate ventilation wear respiratory protection.

**Protective measures**

: Do not inhale vapours. Avoid contact with skin and eyes.

---

**SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Hazy light yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>sweet</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>not tested</td>
</tr>
<tr>
<td>pH</td>
<td>not tested</td>
</tr>
<tr>
<td>Melting point</td>
<td>not determined</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 185 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&gt; 61 °C(1,013 hPa)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not tested</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>12.7 %(V)</td>
</tr>
<tr>
<td></td>
<td>Data relate to solvent</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>1.1 %(V)</td>
</tr>
</tbody>
</table>
Combustion number: Not applicable
Vapour pressure: not tested.
Relative vapour density: not tested.
Density: 0.86 - 0.91 g/cm³ (25 °C)
Method: ASTM D 1298

Solubility(ies)
Water solubility: insoluble
Partition coefficient: n-octanol/water: Not applicable

Auto-ignition temperature: > 270 °C
Decomposition temperature: > 200 °C
No decomposition if used as directed.

Viscosity
Viscosity, dynamic: < 200 mPa.s

Explosive properties: Not explosive
Oxidizing properties: not oxidizing

9.2 Other information
Minimum ignition energy: Not applicable
Particle size: Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity
See section 10.3. "Possibility of hazardous reactions"

10.2 Chemical stability
Stable

10.3 Possibility of hazardous reactions
Hazardous reactions: No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid
Conditions to avoid: Keep away from heat.

10.5 Incompatible materials
Materials to avoid: Strong oxidizing agents
10.6 Hazardous decomposition products
Carbon oxides, Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

**Product:**
- Acute oral toxicity: Remarks: not tested.
- Acute inhalation toxicity: Remarks: not tested.
- Acute dermal toxicity: Remarks: not tested.

**Components:**
- 2-Ethylhexanol:
  - Acute oral toxicity: LD50 (Rat, male): ca. 2,047 mg/kg
    Method: OECD Test Guideline 401
  - Acute inhalation toxicity: LC50 (Rat, male and female): 0.89 - 5.3 mg/l
    Exposure time: 4 h
    Method: OECD Test Guideline 403
  - Acute dermal toxicity: (Rat, male and female): > 3,000 mg/kg
    Method: OECD Test Guideline 402

Skin corrosion/irritation

**Product:**
Remarks: not tested.

**Components:**
- 2-Ethylhexanol:
  - Species: Rabbit
  - Exposure time: 4 h
  - Method: OECD Test Guideline 404
  - Result: Severe skin irritation

Serious eye damage/eye irritation

**Product:**
Remarks: not tested.

**Components:**
- 2-Ethylhexanol:
  - Species: rabbit eye
  - Method: OECD Test Guideline 405
  - Result: Eye irritation
Respiratory or skin sensitisation

**Product:**
Remarks: No sensitisation effects are known

**Components:**

2-Ethylhexanol:
Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Humans
Method: Expert judgement
Result: Does not cause skin sensitisation.

Germ cell mutagenicity

**Product:**
Germ cell mutagenicity- Assessment: No information available.

**Components:**

2-Ethylhexanol:
Genotoxicity in vitro:
- Test Type: Ames test
  Species: Salmonella typhimurium
  Concentration: 330 µg/plate
  Method: OECD Test Guideline 471
  Result: negative

- Test Type: Chromosome aberration test in vitro
  Species: Chinese hamster ovary cells
  Concentration: 233 µg/ml
  Method: OECD Test Guideline 473
  Result: negative

- Test Type: sister chromatid exchange assay
  Species: Chinese hamster ovary cells
  Concentration: 500 µg/ml
  Method: OECD Test Guideline 479
  Result: negative

- Test Type: In vitro gene mutation study in mammalian cells
  Species: mouse lymphoma cells
  Method: OECD Test Guideline 476
  Result: negative

Germ cell mutagenicity- Assessment: It is concluded that the product is not mutagenic based on evaluation of several mutagenicity tests.
Carcinogenicity

Components:

2-Ethylhexanol:

Carcinogenicity - Assessment: Animal testing did not show any carcinogenic effects.

Reproductive toxicity

Components:

2-Ethylhexanol:

Effects on fertility: Remarks: This information is not available.

Effects on foetal development:

Species: Rat
Application Route: Dermal
General Toxicity Maternal: NOAEL: 840 mg/kg body weight
Teratogenicity: NOAEL: 2,520 mg/kg body weight
Developmental Toxicity: NOAEL: 250 mg/kg body weight
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment: No reproductive toxicity to be expected.

No teratogenic effects to be expected.

STOT - single exposure

Components:

2-Ethylhexanol:

Assessment: May cause respiratory irritation.

STOT - repeated exposure

Components:

2-Ethylhexanol:

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Product:

Remarks: not tested.

Components:

2-Ethylhexanol:

Species: Rat, male and female
NOAEL: 250 mg/kg
Application Route: Oral
Exposure time: 90 d
Method: OECD Test Guideline 408
Remarks: No significant adverse effects were reported

Species: Mouse, male and female
NOAEL: 250 mg/kg
Application Route: Oral
Exposure time: 90 d
Method: OECD Test Guideline 408
Remarks: No significant adverse effects were reported

Species: Rat, male and female
NOAEL: ca. 0.65 mg/l
Application Route: Inhalation
Exposure time: 90 d
Method: OECD Test Guideline 413

Aspiration toxicity

Components:
2-Ethylhexanol:
No aspiration toxicity classification

Further information

Product:
Remarks: May cause irritation of respiratory tract.
The classification was made by the conventional (calculation) method of the CLP Regulation (EC) No 1272/2008.

Components:
2-Ethylhexanol:
Remarks: Inhalation causes headache/nausea.
Inhalation causes narcotic effect/intoxication.
Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Ingestion or inhalation of high concentrations may cause injuries to gastrointestinal tract, liver, kidneys and central nervous system.
Poisoning by resorption through skin possible.

SECTION 12: Ecological information

12.1 Toxicity

Product:
Toxicity to fish : Remarks: not tested.
Toxicity to daphnia and other aquatic invertebrates : Remarks: not tested.
Toxicity to algae : Remarks: not tested.

Toxicity to fish (Chronic toxicity) : Remarks: not tested.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: not tested.

Components:

2-Ethylhexanol:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 17.1 mg/l
Exposure time: 96 h

NOEC (Leuciscus idus (Golden orfe)): 14 mg/l
Exposure time: 96 h

LC50 (Pimephales promelas (fathead minnow)): 28.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 16.6 mg/l
End point: Growth rate
Exposure time: 72 h

EC50 (Desmodesmus subspicatus (green algae)): 11.5 mg/l
End point: Biomass
Exposure time: 72 h

Toxicity to bacteria : (activated sludge): > 300 mg/l
Exposure time: 24 h
Method: Other

Toxicity to fish (Chronic toxicity) : Remarks: no data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: no data available

Toxicity to soil dwelling organisms : Remarks: Not applicable

Plant toxicity : Remarks: Not applicable
Sediment toxicity : Remarks: Not applicable
Toxicity to terrestrial organisms : Remarks: Not applicable

12.2 Persistence and degradability

**Product:**
Biodegradability : Biodegradation: 20 - 60 %
Exposure time: 28 d
Remarks: By analogy with a product of similar composition

Physico-chemical removability : Remarks: not tested.

**Components:**
2-Ethylhexanol:
Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Result: Readily biodegradable
Biodegradation: > 80 %
Exposure time: 14 d
Method: OECD Test Guideline 301C

12.3 Bioaccumulative potential

**Product:**
Bioaccumulation : Remarks: not tested.

**Components:**
2-Ethylhexanol:
Bioaccumulation : Bioconcentration factor (BCF): 25.3
Method: calculated

12.4 Mobility in soil

**Product:**
Distribution among environmental compartments : Remarks: not tested.

**Components:**
2-Ethylhexanol:
Distribution among environmental compartments : adsorption
Medium: Soil
Remarks: no data available
12.5 Results of PBT and vPvB assessment

**Product:**

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

**Components:**

2-Ethylhexanol:

| Assessment | This substance is not considered to be persistent, bioaccumulating and toxic (PBT). |

12.6 Other adverse effects

**Product:**

- Environmental fate and pathways: not tested.
- Additional ecological information: The classification was made by the conventional (calculation) method of the CLP Regulation (EC) No 1272/2008. The product should not be allowed to enter drains, water courses or the soil.

**Components:**

2-Ethylhexanol:

- Environmental fate and pathways: no data available
- Additional ecological information: The product should not be allowed to enter drains, water courses or the soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- **Product**: Dispose of in accordance with local regulations.
- **Contaminated packaging**: Regulations concerning reuse or disposal of used packaging materials must be observed.

SECTION 14: Transport information

Section 14.1. to 14.5.

- **ADR**: not restricted
- **ADN**: not restricted
14.6. Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code (International Bulk Chemicals Code)

No transport as bulk according IBC Code.

SECTION 15: Regulatory information

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

Other regulations: European Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

15.2 Chemical safety assessment

Chemical Safety Assessments (CSAs) are available for one or more of the component substances contained in this product.

SECTION 16: Other information

Full text of H-statements

H315: Causes skin irritation.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H412: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.: Acute toxicity
Aquatic Chronic: Chronic aquatic toxicity
Eye Irrit.: Eye irritation
Skin Irrit.: Skin irritation
STOT SE: Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the
**Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECl - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative**

**Further information**

This information corresponds to the present state of our knowledge and is intended as a general description of our products and their possible applications. Clariant makes no warranties, express or implied, as to the information's accuracy, adequacy, sufficiency or freedom from defect and assumes no liability in connection with any use of this information. Any user of this product is responsible for determining the suitability of Clariant's products for its particular application. Nothing included in this information waives any of Clariant's General Terms and Conditions of Sale, which control unless it agrees otherwise in writing. Any existing intellectual/industrial property rights must be observed. Due to possible changes in our products and applicable national and international regulations and laws, the status of our products could change. Material Safety Data Sheets providing safety precautions, that should be observed when handling or storing Clariant products, are available upon request and are provided in compliance with applicable law. You should obtain and review the applicable Material Safety Data Sheet information before handling any of these products. For additional information, please contact Clariant.
Exposure scenario

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 1</td>
<td>Formulation; Formulation &amp; (re)packing of substances and mixtures</td>
</tr>
<tr>
<td></td>
<td>PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14,</td>
</tr>
<tr>
<td></td>
<td>PROC15 - ERC2</td>
</tr>
<tr>
<td></td>
<td>2-Ethylhexanol</td>
</tr>
<tr>
<td>ES 2</td>
<td>Formulation; Distribution of substance</td>
</tr>
<tr>
<td></td>
<td>PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15 - ERC1,</td>
</tr>
<tr>
<td></td>
<td>ERC2</td>
</tr>
<tr>
<td></td>
<td>2-Ethylhexanol</td>
</tr>
<tr>
<td>ES 3</td>
<td>Industrial use; Use in oil and gas field drilling and production</td>
</tr>
<tr>
<td></td>
<td>operations</td>
</tr>
<tr>
<td></td>
<td>PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b - ERC4</td>
</tr>
<tr>
<td></td>
<td>2-Ethylhexanol</td>
</tr>
</tbody>
</table>

1. ES 1: Formulation; Formulation & (re)packing of substances and mixtures

1.1. Titles of Contributing scenarios (CS)

<table>
<thead>
<tr>
<th>Environment</th>
<th>CS1: Formulation (Formulation of preparations)</th>
<th>ERC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>CS2: Formulation (Use in closed process, no likelihood of exposure)</td>
<td>PROC1</td>
</tr>
<tr>
<td></td>
<td>CS3: Formulation (Use in closed, continuous process with occasional controlled exposure)</td>
<td>PROC2</td>
</tr>
<tr>
<td></td>
<td>CS4: Formulation (Use in closed batch process (synthesis or formulation))</td>
<td>PROC3</td>
</tr>
<tr>
<td></td>
<td>CS5: Formulation (Use in batch and other process (synthesis) where opportunity for exposure arises)</td>
<td>PROC4</td>
</tr>
<tr>
<td></td>
<td>CS6: Formulation (Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact))</td>
<td>PROC5</td>
</tr>
<tr>
<td></td>
<td>CS7: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities)</td>
<td>PROC8a</td>
</tr>
<tr>
<td></td>
<td>CS8: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities)</td>
<td>PROC8b</td>
</tr>
<tr>
<td></td>
<td>CS9: Formulation (Transfer of substance or preparation into small containers (dedicated filling line, including weighing))</td>
<td>PROC9</td>
</tr>
<tr>
<td></td>
<td>CS10: Formulation (Production of preparations or articles by tableting, compression, extrusion, pelettisation)</td>
<td>PROC14</td>
</tr>
<tr>
<td></td>
<td>CS11: Formulation (Use as laboratory reagent)</td>
<td>PROC15</td>
</tr>
</tbody>
</table>
1.2. ES 1 Conditions of use affecting exposure

1.2.1 ES 1 - CS 1: Control of environmental exposure: Formulation (Formulation of preparations) (ERC2)

Remarks : ESVOC SPERC 2.2.v1

Amount used
Annual site tonnage : 400 tonnes/year
Daily amount per site : 1330 kg/day

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

Conditions and measures related to sewage treatment plant
Type of Sewage Treatment Plant : Municipal Sewage Treatment Plant
Flow rate of sewage treatment plant effluent : 2,000 m³/d
Effectiveness (of a measure) : 88 %

Waste management measures
Disposal methods : Dispose of waste product or used containers according to local regulations.

1.2.2 ES 1 - CS 2: Control of worker exposure: Formulation (Use in closed process, no likelihood of exposure) (PROC1)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %
Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of one hand
Covers skin contact area up to : 240 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use
Risk Management Measures

Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.

Note: Personal measures have to be applied in case of potential exposure only.

1.2.3 ES 1 - CS 3: Control of worker exposure: Formulation (Use in closed, continuous process with occasional controlled exposure) (PROC2)

Product characteristics

Concentration of the Substance in Mixture/Article: <= 100 %

Physical Form (at time of use): Liquid

Vapour pressure: < 0.5 hPa

Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration: 8 h

Human factors not influenced by risk management

Dermal exposure: Palm of both hands

Covers skin contact area up to: 480 cm²

Other operational conditions affecting workers exposure

Outdoor / Indoor: Indoor or outdoor use

Risk Management Measures

Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.

Note: Personal measures have to be applied in case of potential exposure only.

1.2.4 ES 1 - CS 4: Control of worker exposure: Formulation (Use in closed batch process (synthesis or formulation)) (PROC3)

Product characteristics

Concentration of the Substance in Mixture/Article: <= 100 %

Physical Form (at time of use): Liquid

Vapour pressure: < 0.5 hPa

Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration: 8 h

Human factors not influenced by risk management

Dermal exposure: Palm of one hand

Covers skin contact area up to: 240 cm²
Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.

Note : Personal measures have to be applied in case of potential exposure only.

1.2.5 ES 1 - CS 5: Control of worker exposure: Formulation (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of both hands
Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.

Note : Personal measures have to be applied in case of potential exposure only.

1.2.6 ES 1 - CS 6: Control of worker exposure: Formulation (Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)) (PROC5)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h
Human factors not influenced by risk management

Dermal exposure : Palm of both hands
Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Risk Management Measures

Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.

Note : Personal measures have to be applied in case of potential exposure only.

Exposure routes : Inhalative
Technical conditions and measures : Provide extract ventilation to points where emissions occur.
Effectiveness (of a measure) : 90 %

Exposure routes : Dermal
Technical conditions and measures : Provide extract ventilation to points where emissions occur.
Effectiveness (of a measure) : 50 %

1.2.7 ES 1 - CS 7: Control of worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities) (PROC8a)

Product characteristics

Concentration of the Substance in Mixture/Article : ≤ 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use

Exposure duration : 8 h

Human factors not influenced by risk management

Dermal exposure : Both hands
Covers skin contact area up to : 960 cm²

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor use

Risk Management Measures

Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.

Note : Personal measures have to be applied in case of potential exposure only.
Exposure routes: inhalative
Technical conditions and measures: Provide extract ventilation to points where emissions occur.
Effectiveness (of a measure): 90%

Exposure routes: Dermal
Technical conditions and measures: Provide extract ventilation to points where emissions occur.
Effectiveness (of a measure): 50%

1.2.8 ES 1 - CS 8: Control of worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities) (PROC8b)

Product characteristics
- Concentration of the Substance in Mixture/Article: <= 100%
- Physical Form (at time of use): Liquid
- Vapour pressure: < 0.5 hPa
- Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
- Exposure duration: 8 h

Human factors not influenced by risk management
- Dermal exposure: Palm of both hands
- Covers skin contact area up to: 480 cm²

Other operational conditions affecting workers exposure
- Outdoor / Indoor: Indoor or outdoor use

Risk Management Measures
- Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.
- Note: Personal measures have to be applied in case of potential exposure only.

1.2.9 ES 1 - CS 9: Control of worker exposure: Formulation (Transfer of substance or preparation into small containers (dedicated filling line, including weighing)) (PROC9)

Product characteristics
- Concentration of the Substance in Mixture/Article: <= 100%
- Physical Form (at time of use): Liquid
- Vapour pressure: < 0.5 hPa
- Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of both hands
Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

1.2.10 ES 1 - CS 10: Control of worker exposure: Formulation (Production of preparations or articles by tabletting, compression, extrusion, pelettisation) (PROC14)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %
Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of both hands
Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

1.2.11 ES 1 - CS 11: Control of worker exposure: Formulation (Use as laboratory reagent) (PROC15)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %
Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of one hand
Covers skin contact area up to : 240 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

1.3. ES 1 Exposure estimation and reference to its source

1.3.1 ES 1 - CS 1: Environmental release and exposure: Formulation (Formulation of preparations) (ERC2)

<table>
<thead>
<tr>
<th>Release route</th>
<th>Release rate</th>
<th>Release estimation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>6.65 kg/day</td>
<td>ESVOC SPERC 2.2.v1</td>
</tr>
<tr>
<td>Water</td>
<td>2.66 kg/day</td>
<td>ESVOC SPERC 2.2.v1</td>
</tr>
<tr>
<td>Soil</td>
<td>0.133 kg/day</td>
<td>ESVOC SPERC 2.2.v1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protection target</th>
<th>Exposure estimation and reference to its source (based on ECETOC TRA v2.0 environment)</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage treatment plant.</td>
<td>0.15561 mg/L (ESVOC SPERC 2.2.v1)</td>
<td>0.1556</td>
</tr>
<tr>
<td>Freshwater</td>
<td>0.01657 mg/L (ESVOC SPERC 2.2.v1)</td>
<td>0.97491</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.13048 mg/kg dry weight (ESVOC SPERC 2.2.v1)</td>
<td>0.46598</td>
</tr>
<tr>
<td>Marine water</td>
<td>0.00164 mg/L (ESVOC SPERC 2.2.v1)</td>
<td>0.96655</td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.01294 mg/kg dry weight (ESVOC SPERC 2.2.v1)</td>
<td>0.46199</td>
</tr>
<tr>
<td>Soil</td>
<td>0.01393 mg/kg dry weight (ESVOC SPERC 2.2.v1)</td>
<td>0.29636</td>
</tr>
</tbody>
</table>

1.3.2 ES 1 - CS 2: Worker exposure: Formulation (Use in closed process, no likelihood of exposure) (PROC1)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0149</td>
</tr>
<tr>
<td>inhalative</td>
<td>0.0543 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>
1.3.3 ES 1 - CS 3: Worker exposure: Formulation (Use in closed, continuous process with occasional controlled exposure) (PROC2)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>1.3714 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0596</td>
</tr>
<tr>
<td>inhalative</td>
<td>5.4263 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.1020</td>
</tr>
</tbody>
</table>

1.3.4 ES 1 - CS 4: Worker exposure: Formulation (Use in closed batch process (synthesis or formulation)) (PROC3)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0149</td>
</tr>
<tr>
<td>inhalative</td>
<td>16.2788 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.3060</td>
</tr>
</tbody>
</table>

1.3.5 ES 1 - CS 5: Worker exposure: Formulation (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

1.3.6 ES 1 - CS 6: Worker exposure: Formulation (Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)) (PROC5)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>2.7131 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.05100</td>
</tr>
</tbody>
</table>

1.3.7 ES 1 - CS 7: Worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities) (PROC8a)
### 1.3.8 ES 1 - CS 8: Worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities) (PROC8b)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>5.4263 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.1020</td>
</tr>
</tbody>
</table>

### 1.3.9 ES 1 - CS 9: Worker exposure: Formulation (Transfer of substance or preparation into small containers (dedicated filling line, including weighing)) (PROC9)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

### 1.3.10 ES 1 - CS 10: Worker exposure: Formulation (Production of preparations or articles by tabletting, compression, extrusion, pelettisation) (PROC14)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>3.4286 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.1491</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

### 1.3.11 ES 1 - CS 11: Worker exposure: Formulation (Use as laboratory reagent) (PROC15)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.01491</td>
</tr>
</tbody>
</table>
1.4. ES 1 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

ECHA guidance for downstream users
Section 2

2. ES 2: Formulation; Distribution of substance

2.1. Titles of Contributing scenarios (CS)

<table>
<thead>
<tr>
<th>Environment</th>
<th>CS1: Formulation (Manufacture of substances, Formulation of preparations)</th>
<th>ERC1, ERC2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>CS2: Formulation (Use in closed process, no likelihood of exposure)</td>
<td>PROC1</td>
</tr>
<tr>
<td></td>
<td>CS3: Formulation (Use in closed, continuous process with occasional</td>
<td>PROC2</td>
</tr>
<tr>
<td></td>
<td>controlled exposure)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS4: Formulation (Use in closed batch process (synthesis or formulation))</td>
<td>PROC3</td>
</tr>
<tr>
<td></td>
<td>CS5: Formulation (Use in batch and other process (synthesis) where</td>
<td>PROC4</td>
</tr>
<tr>
<td></td>
<td>opportunity for exposure arises)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS6: Formulation (Transfer of substance or preparation (charging/discharge) from/to vessels/large containers at non dedicated facilities)</td>
<td>PROC8a</td>
</tr>
<tr>
<td></td>
<td>CS7: Formulation (Transfer of substance or preparation (charging/discharge) from/to vessels/large containers at dedicated facilities)</td>
<td>PROC8b</td>
</tr>
<tr>
<td></td>
<td>CS8: Formulation (Transfer of substance or preparation into small containers (dedicated filling line, including weighing))</td>
<td>PROC9</td>
</tr>
<tr>
<td></td>
<td>CS9: Formulation (Use as laboratory reagent)</td>
<td>PROC15</td>
</tr>
</tbody>
</table>

2.2. ES 2 Conditions of use affecting exposure

2.2.1 ES 2 - CS 1: Control of environmental exposure: Formulation (Manufacture of substances, Formulation of preparations) (ERC1, ERC2)

Remarks : ESVOC SPERC 1.1b.v1

Amount used
Annual site tonnage : 200000 tonnes/year
Daily amount per site : 1300 kg/day
Environment factors not influenced by risk management
Flow rate of receiving surface: 18,000 m³/d
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Conditions and measures related to sewage treatment plant
Type of Sewage Treatment Plant: Municipal Sewage Treatment Plant
Flow rate of sewage treatment plant effluent: 2,000 m³/d
Effectiveness (of a measure): 88%

Waste management measures
Disposal methods: Dispose of waste product or used containers according to local regulations.

2.2.2 ES 2 - CS 2: Control of worker exposure: Formulation (Use in closed process, no likelihood of exposure) (PROC1)

Product characteristics
Concentration of the Substance in Mixture/Article: <= 100 %
Physical Form (at time of use): Liquid
Vapour pressure: < 0.5 hPa
Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration: 8 h

Human factors not influenced by risk management
Dermal exposure: Palm of one hand
Covers skin contact area up to: 240 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor or outdoor use

Risk Management Measures
Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.
Note: Personal measures have to be applied in case of potential exposure only.

2.2.3 ES 2 - CS 3: Control of worker exposure: Formulation (Use in closed, continuous process with occasional controlled exposure) (PROC2)

Product characteristics
Concentration of the Substance in Mixture/Article: <= 100 %
Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of both hands
Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

2.2.4 ES 2 - CS 4: Control of worker exposure: Formulation (Use in closed batch process (synthesis or formulation)) (PROC3)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %
Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of one hand
Covers skin contact area up to : 240 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

2.2.5 ES 2 - CS 5: Control of worker exposure: Formulation (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

PHASETREAT 6082

Substance key: 000000178260
Revision Date: 16.03.2016
Version : 4 - 0 / GB
Date of printing : 17.10.2016

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Palm of both hands
Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

2.2.6 ES 2 - CS 6: Control of worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities) (PROC8a)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Both hands
Covers skin contact area up to : 960 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential
Exposure routes: inhalative
Technical conditions and measures: Provide extract ventilation to points where emissions occur.
Effectiveness (of a measure): 90%

Exposure routes: Dermal
Technical conditions and measures: Provide extract ventilation to points where emissions occur.
Effectiveness (of a measure): 50%

2.2.7 ES 2 - CS 7: Control of worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities) (PROC8b)

Product characteristics
Concentration of the Substance in Mixture/Article: <= 100%
Physical Form (at time of use): Liquid
Vapour pressure: < 0.5 hPa
Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration: 8 h

Human factors not influenced by risk management
Dermal exposure: Palm of both hands
Covers skin contact area up to: 480 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor or outdoor use

Risk Management Measures
Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.
Note: Personal measures have to be applied in case of potential exposure only.

2.2.8 ES 2 - CS 8: Control of worker exposure: Formulation (Transfer of substance or preparation into small containers (dedicated filling line, including weighing)) (PROC9)

Product characteristics
Concentration of the Substance in Mixture/Article: <= 100%
Physical Form (at time of use): Liquid
Vapour pressure: < 0.5 hPa
Remarks: Assumes use at not more than 20°C above ambient temperature.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006
2.3.2 ES 2 - CS 2: Worker exposure: Formulation (Use in closed process, no likelihood of exposure) (PROC1)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0149</td>
</tr>
<tr>
<td>inhalative</td>
<td>0.0543 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

2.3.3 ES 2 - CS 3: Worker exposure: Formulation (Use in closed, continuous process with occasional controlled exposure) (PROC2)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>1.3714 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0596</td>
</tr>
<tr>
<td>inhalative</td>
<td>5.4263 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.102</td>
</tr>
</tbody>
</table>

2.3.4 ES 2 - CS 4: Worker exposure: Formulation (Use in closed batch process (synthesis or formulation)) (PROC3)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0149</td>
</tr>
<tr>
<td>inhalative</td>
<td>16.2788 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.3060</td>
</tr>
</tbody>
</table>

2.3.5 ES 2 - CS 5: Worker exposure: Formulation (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)
2.3.6 ES 2 - CS 6: Worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities) (PROC8a)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

2.3.7 ES 2 - CS 7: Worker exposure: Formulation (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities) (PROC8b)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

2.3.8 ES 2 - CS 8: Worker exposure: Formulation (Transfer of substance or preparation into small containers (dedicated filling line, including weighing)) (PROC9)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

2.3.9 ES 2 - CS 9: Worker exposure: Formulation (Use as laboratory reagent) (PROC15)
2.4. ES 2 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

ECHA guidance for downstream users
Section 2

3. ES 3: Industrial use; Use in oil and gas field drilling and production operations

3.1. Titles of Contributing scenarios (CS)

<table>
<thead>
<tr>
<th>Environment</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1: Industrial use</td>
<td>CS2: Industrial use</td>
</tr>
<tr>
<td></td>
<td>(Industrial use of processing</td>
</tr>
<tr>
<td></td>
<td>aids in processes and</td>
</tr>
<tr>
<td></td>
<td>products, not becoming part of</td>
</tr>
<tr>
<td></td>
<td>articles)</td>
</tr>
<tr>
<td></td>
<td>CS3: Industrial use</td>
</tr>
<tr>
<td></td>
<td>(Use in closed, continuous</td>
</tr>
<tr>
<td></td>
<td>process with occasional</td>
</tr>
<tr>
<td></td>
<td>controlled exposure)</td>
</tr>
<tr>
<td></td>
<td>CS4: Industrial use</td>
</tr>
<tr>
<td></td>
<td>(Use in batch and other</td>
</tr>
<tr>
<td></td>
<td>process (synthesis)</td>
</tr>
<tr>
<td></td>
<td>CS5: Industrial use</td>
</tr>
<tr>
<td></td>
<td>(Use in batch and other</td>
</tr>
<tr>
<td></td>
<td>process (synthesis) where</td>
</tr>
<tr>
<td></td>
<td>opportunity for exposure</td>
</tr>
<tr>
<td></td>
<td>arises)</td>
</tr>
<tr>
<td></td>
<td>CS7: Industrial use</td>
</tr>
<tr>
<td></td>
<td>(Transfer of substance or</td>
</tr>
<tr>
<td></td>
<td>preparation)</td>
</tr>
<tr>
<td></td>
<td>CS8: Industrial use</td>
</tr>
<tr>
<td></td>
<td>(Transfer of substance or</td>
</tr>
<tr>
<td></td>
<td>preparation)</td>
</tr>
</tbody>
</table>

3.2. ES 3 Conditions of use affecting exposure

3.2.1 ES 3 - CS 1: Control of environmental exposure: Industrial use (Industrial use of processing aids in processes and products, not becoming part of articles) (ERC4)

Remarks : ESVOC SPERC 4.5a.v1
Amount used
Annual site tonnage: 1 tonnes/year
Daily amount per site: 33 kg/day

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

Conditions and measures related to sewage treatment plant
Type of Sewage Treatment Plant: Municipal Sewage Treatment Plant
Flow rate of sewage treatment plant effluent: 2,000 m³/d
Effectiveness (of a measure): 88%

Waste management measures
Disposal methods: Dispose of waste product or used containers according to local regulations.

3.2.2 ES 3 - CS 2: Control of worker exposure: Industrial use (Use in closed process, no likelihood of exposure) (PROC1)

Product characteristics
Concentration of the Substance in Mixture/Article: <= 100%
Physical Form (at time of use): Liquid
Vapour pressure: < 0.5 hPa
Remarks: Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration: 8 h

Human factors not influenced by risk management
Dermal exposure: Palm of one hand
Covers skin contact area up to: 240 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor or outdoor use

Risk Management Measures
Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.
Note: Personal measures have to be applied in case of potential exposure only.

3.2.3 ES 3 - CS 3: Control of worker exposure: Industrial use (Use in closed, continuous process with occasional controlled exposure) (PROC2)
Product characteristics
  Concentration of the Substance in Mixture/Article : <= 100 %
  Physical Form (at time of use) : Liquid
  Vapour pressure : < 0.5 hPa
  Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
  Exposure duration : 8 h

Human factors not influenced by risk management
  Dermal exposure : Palm of both hands
  Covers skin contact area up to : 480 cm²

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
  Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
  Note : Personal measures have to be applied in case of potential exposure only.

3.2.4 ES 3 - CS 4: Control of worker exposure: Industrial use (Use in closed batch process (synthesis or formulation)) (PROC3)

Product characteristics
  Concentration of the Substance in Mixture/Article : <= 100 %
  Physical Form (at time of use) : Liquid
  Vapour pressure : < 0.5 hPa
  Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
  Exposure duration : 8 h

Human factors not influenced by risk management
  Dermal exposure : Palm of one hand
  Covers skin contact area up to : 240 cm²

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
  Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
  Note : Personal measures have to be applied in case of potential exposure only.
3.2.5 ES 3 - CS 5: Control of worker exposure: Industrial use (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)

**Product characteristics**
- Concentration of the Substance in Mixture/Article: \( \leq 100 \% \)
- Physical Form (at time of use): Liquid
- Vapour pressure: \(< 0.5 \text{ hPa}\)
- Remarks: Assumes use at not more than 20°C above ambient temperature.

**Frequency and duration of use**
- Exposure duration: 8 h

**Human factors not influenced by risk management**
- Dermal exposure: Palm of both hands
- Covers skin contact area up to: 480 cm²

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor or outdoor use

**Risk Management Measures**
- Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.
- Note: Personal measures have to be applied in case of potential exposure only.

3.2.6 ES 3 - CS 6: Control of worker exposure: Industrial use (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)

**Product characteristics**
- Concentration of the Substance in Mixture/Article: \( \leq 100 \% \)
- Physical Form (at time of use): Liquid
- Vapour pressure: \(< 0.5 \text{ hPa}\)
- Remarks: Operation is carried out at elevated temperature (> 20°C above ambient temperature)

**Human factors not influenced by risk management**
- Dermal exposure: Palm of both hands
- Covers skin contact area up to: 480 cm²

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor use

**Risk Management Measures**
- Personal protective measures: Wear suitable gloves (tested to EN374), coverall and eye protection.
- Note: Personal measures have to be applied in case of potential exposure only.
3.2.7 ES 3 - CS 7: Control of worker exposure: Industrial use (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities) (PROC8a)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient temperature.

Frequency and duration of use
Exposure duration : 8 h

Human factors not influenced by risk management
Dermal exposure : Both hands
Covers skin contact area up to : 960 cm²

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor or outdoor use

Risk Management Measures
Personal protective measures : Wear suitable gloves (tested to EN374), coverall and eye protection.
Note : Personal measures have to be applied in case of potential exposure only.

3.2.8 ES 3 - CS 8: Control of worker exposure: Industrial use (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities) (PROC8b)

Product characteristics
Concentration of the Substance in Mixture/Article : <= 100 %

Physical Form (at time of use) : Liquid
Vapour pressure : < 0.5 hPa
Remarks : Assumes use at not more than 20°C above ambient
3.3. ES 3 Exposure estimation and reference to its source

3.3.1 ES 3 - CS 1: Environmental release and exposure: Industrial use (Industrial use of processing aids in processes and products, not becoming part of articles) (ERC4)

<table>
<thead>
<tr>
<th>Release route</th>
<th>Release rate</th>
<th>Release estimation method</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>0.033 kg/day</td>
<td>ESVOC SPERC 4.5a.v1</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>2.31 kg/day</td>
<td>ESVOC SPERC 4.5a.v1</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>0 kg/day</td>
<td>ESVOC SPERC 4.5a.v1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protection target</th>
<th>Exposure estimation and reference to its source (based on ECETOC TRA v2.0 environment)</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage treatment plant.</td>
<td>0.13616 mg/L (ESVOC SPERC 4.5a.v1)</td>
<td>0.01362</td>
</tr>
<tr>
<td>Freshwater</td>
<td>0.01463 mg/L (ESVOC SPERC 4.5a.v1)</td>
<td>0.86087</td>
</tr>
<tr>
<td>Freshwater sediment</td>
<td>0.11521 mg/kg dry weight (ESVOC SPERC 4.5a.v1)</td>
<td>0.41148</td>
</tr>
<tr>
<td>Marine water</td>
<td>0.00145 mg/L (ESVOC SPERC 4.5a.v1)</td>
<td>0.85247</td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.01141 mg/kg dry weight (ESVOC SPERC 4.5a.v1)</td>
<td>0.40746</td>
</tr>
<tr>
<td>Soil</td>
<td>0.01201 mg/kg dry weight (ESVOC SPERC 4.5a.v1)</td>
<td>0.25552</td>
</tr>
</tbody>
</table>

3.3.2 ES 3 - CS 2: Worker exposure: Industrial use (Use in closed process, no likelihood of exposure) (PROC1)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0149</td>
</tr>
<tr>
<td>inhalalative</td>
<td>0.0543 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>
### 3.3.3 ES 3 - CS 3: Worker exposure: Industrial use (Use in closed, continuous process with occasional controlled exposure) (PROC2)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>1.3714 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0596</td>
</tr>
<tr>
<td>inhalative</td>
<td>5.4263 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.1020</td>
</tr>
</tbody>
</table>

### 3.3.4 ES 3 - CS 4: Worker exposure: Industrial use (Use in closed batch process (synthesis or formulation)) (PROC3)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.3429 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.0149</td>
</tr>
<tr>
<td>inhalative</td>
<td>16.2788 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.3060</td>
</tr>
</tbody>
</table>

### 3.3.5 ES 3 - CS 5: Worker exposure: Industrial use (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>6.8571 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2981</td>
</tr>
<tr>
<td>inhalative</td>
<td>27.1313 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5100</td>
</tr>
</tbody>
</table>

### 3.3.6 ES 3 - CS 6: Worker exposure: Industrial use (Use in batch and other process (synthesis) where opportunity for exposure arises) (PROC4)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>0.17 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>inhalative</td>
<td>16.28 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.306</td>
</tr>
</tbody>
</table>

### 3.3.7 ES 3 - CS 7: Worker exposure: Industrial use (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities) (PROC8a)

<table>
<thead>
<tr>
<th>Route of exposure and type</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
</table>
3.3.8 ES 3 - CS 8: Worker exposure: Industrial use (Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities) (PROC8b)

<table>
<thead>
<tr>
<th>Route of exposure and type of effects</th>
<th>Exposure estimate</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>13.7143 mg/kg bw/day (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.5963</td>
</tr>
<tr>
<td>inhalative</td>
<td>10.8525 mg/m³ (ECETOC TRA v2.0 worker, Only highest exposure levels are given.)</td>
<td>0.2040</td>
</tr>
</tbody>
</table>

3.4. ES 3 Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

ECHA guidance for downstream users
Section 2