SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

MONOETHANOLAMINE (MEA)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
   Trade name : MONOETHANOLAMINE (MEA)
   Index-No. : 603-030-00-8

   REACH Registration Number : 01-2119486455-28-0004

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Use of the Substance/Mixture : Specific use(s):
   Refer to attached exposure scenario Annex.

1.3 Details of the supplier of the safety data sheet
   Company : Nouryon
   Functional Chemicals AB
   SE 444 85 Stenungsund
   Sweden
   Telephone : +4630385000
   Telefax : +46303770551
   E-mail address : QTS@nouryon.com

1.4 Emergency telephone number
   Emergency telephone number : 24 hours emergency response number: +31 57 06 79211
   Kemiakuten-SE: 020 99 60 00

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
   Classification (REGULATION (EC) No 1272/2008)
Acute toxicity, 4, H302
Acute toxicity, 4, H332
Acute toxicity, 4, H312
Skin corrosion, 1B, H314
Serious eye damage, 1, H318
Specific target organ toxicity - single exposure, 3, Respiratory system, H335
Long-term (chronic) aquatic hazard, 3, H412

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

2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

**Pictogram**:  

**Signal word**: Danger

**Hazard statements**:  
- H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled.
- H314: Causes severe skin burns and eye damage.
- H335: May cause respiratory irritation.
- H412: Harmful to aquatic life with long lasting effects.

**Precautionary statements**:  
**Prevention**:  
- P261: Avoid breathing mist, vapours or spray.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response**:  
- P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
- P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

**Hazardous components which must be listed on the label**:  
Ethanolamine 141-43-5

2.3 Other hazards

No further data available.

**PBT and vPvB 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.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Pure substance/mixture : Substance
CAS-No. : 141-43-5

Hazardous substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>PBT vPvB OEL</th>
<th>CAS-No. EC-No. REACH No.</th>
<th>Classification (REGULATION (EC) No 1272/2008)</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
<td>205-483-3 01-2119486455-28</td>
<td>Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Chronic 3; H412</td>
<td>&gt;= 90 - &lt;= 100</td>
</tr>
</tbody>
</table>

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).
Status : Not applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice : Immediate medical attention is required. Move out of dangerous area. Show this safety data sheet to the doctor in attendance.

If inhaled : If breathed in, move person into fresh air. Consult a physician after significant exposure.

In case of skin contact : Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If skin irritation persists, call a physician.

In case of eye contact : Rinse with plenty of water. Get medical attention immediately. Continue to rinse during transport. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
If swallowed: Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. Do not induce vomiting! May cause chemical burns in mouth and throat.

4.2 Most important symptoms and effects, both acute and delayed

**Symptoms**: The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

**Risks**: Harmful if swallowed, in contact with skin or if inhaled. Causes serious eye damage. May cause respiratory irritation. Causes severe burns.

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: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting / Specific hazards arising from the chemical: Water spray may be ineffective unless used by experienced firefighters. Do not allow run-off from fire fighting to enter drains or water courses.

Combustion products: Carbon oxides
 Nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

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

Emergency measures on: Evacuate personnel to safe areas.
MONOETHANOLAMINE (MEA)

accidental release

Only qualified personnel equipped with suitable protective equipment may intervene.
Prevent unauthorised persons entering the zone.

6.2 Environmental precautions

Environmental precautions: 
Try to prevent the material from entering drains or water courses.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up / Methods for containment: 
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

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

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling: 
For personal protection see section 8.
Avoid formation of aerosol.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion: 
Avoid formation of aerosol.
Keep away from sources of ignition - No smoking.
No sparking tools should be used.
Take measures to prevent the build up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: 
No smoking.
Keep container tightly closed in a dry and well-ventilated place.
Reacts with copper, aluminium, zinc and their alloys.

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

7.3 Specific end use(s)

Specific use(s): 
Refer to attached exposure scenario Annex.
### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
<th>Form of exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanolamine</td>
<td>141-43-5</td>
<td>TWA 1 ppm 2.5 mg/m³</td>
<td>2006-02-09</td>
<td>2006/15/EC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 3 ppm 7.6 mg/m³</td>
<td>2006-02-09</td>
<td>2006/15/EC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA 1 ppm 2.5 mg/m³</td>
<td>2007-08-01</td>
<td>GB EH40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL 3 ppm 7.6 mg/m³</td>
<td>2007-08-01</td>
<td>GB EH40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **ACGIH**: American Conference of Governmental Industrial Hygienists
- **AGW**: Arbeitsplatzgrenzwert
- **BEI**: Biological Exposure Index
- **MAC**: Maximum Allowable Concentration
- **NIOSH**: National Institute for Occupational Safety and Health
- **OEL**: OEL: Occupational exposure limit.
- **STEL**: Short term exposure limit
- **TRGS**: Technische Regel für Gefahrstoffe
- **TWA**: Time Weighted Average

#### 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>Ethanolamine</td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>3.3 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>0.24 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>3.75 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>2 mg/m³</td>
</tr>
</tbody>
</table>

#### 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>
</tr>
</thead>
</table>
8.2 Exposure controls

**Engineering controls**
Effective exhaust ventilation system
Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal protective equipment**

**Respiratory protection**
In the case of vapour or aerosol formation use a respirator with an approved filter.
Wear full face mask supplied with:
Gas cartridge K (ammonia, green).

**Hand protection**
butyl-rubber
Break through time: > 30 min
Glove thickness: >= 0.2 mm
Wearing time < 30 minutes

butyl-rubber
Break through time: > 240 min
Glove thickness: >= 0.6 mm
Wearing time < 240 minutes

butyl-rubber
Break through time: > 480 min
Glove thickness: >= 0.8 mm
Wearing time < 480 minutes

The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove.

**Eye protection**
Safety glasses with side-shields conforming to EN166

**Skin and body protection**
Protective suit

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.
Environmental exposure controls
General advice: Try to prevent the material from entering drains or water courses. If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

**Appearance**
- Form: Clear liquid
- Colour: Colourless
- Odour: Amine-like
- Odour Threshold: No data available

**Safety data**
- pH: 12.1 at 20 °C
- Melting point/freezing point: 4 °C at 1,013 hPa
- Boiling point/boiling range: 167 °C at 1,013 hPa
- Flash point: 92.5 °C Method: ISO 2719
- Evaporation rate: No data available
- Flammability (solid, gas): Not applicable
- Flammability (liquids): Product is combustible at high temperatures.
- Lower explosion limit: 3.4 %(V) at 88.3 °C
- Upper explosion limit: 27.0 %(V) at 133.8 °C
- Vapour pressure: 0.5 hPa at 20 °C
- Relative vapour density: 2.1
- Density: 1,016 kg/m3 at 20 °C
- Relative density: 1.016 at 20 °C
MONOETHANOLAMINE (MEA)

Water solubility: completely miscible
Solubility in other solvents: Soluble in ethanol and acetone.
Partition coefficient: n-octanol/water: log Pow: -2.3 at 25 °C
Auto-ignition temperature: 424 °C at 1,013 hPa
Decomposition temperature: No data available
Viscosity, dynamic: 23.18 mPa.s at 20 °C
Viscosity, kinematic: 23.55 mm2/s at 20 °C
Explosive properties: Not explosive
Oxidizing properties: The substance or mixture is not classified as oxidizing.

9.2 Other information
Molecular weight: 61.08 g/mol

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Stable under normal conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Heating can release hazardous gases.

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

10.5 Incompatible materials
Materials to avoid: Reacts with copper, aluminium, zinc and their alloys.
Strong acids and oxidizing agents
Halogenated compounds

10.6 Hazardous decomposition products
Hazardous decomposition products: Nitrogen oxides (NOx)

Thermal decomposition: No data available
SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Product information:**

**Acute toxicity:**
- Harmful if swallowed, in contact with skin or if inhaled.

**Skin corrosion/irritation:**
- Causes severe burns.

**Serious eye damage/eye irritation:**
- Causes serious eye damage.

**Respiratory or skin sensitisation:**
- Respiratory sensitisation: Not classified based on available information.
- Skin sensitisation: Not classified based on available information.

**Germ cell mutagenicity:**
- Not classified based on available information.

**Carcinogenicity:**
- Not classified based on available information.

**Reproductive toxicity:**
- Not classified based on available information.

**STOT - single exposure:**
- May cause respiratory irritation.

**STOT - repeated exposure:**
- Not classified based on available information.

**Aspiration hazard:**
- Not classified based on available information.

**Further information:**
- No further data available.

**Toxicology data for the components:**

**Ethanolamine**

**Acute toxicity:**

**Acute oral toxicity:**
- LD50: 1,089 mg/kg
  - Species: Rat
  - Method: OECD Test Guideline 401
  - Information taken from reference works and the literature.

**Acute inhalation toxicity:**
- LC50: 20 mg/l
  - Exposure time: 4 h
  - Test atmosphere: vapour
  - Method: Acute toxicity estimate

**Acute dermal toxicity:**
- LD50: 2,000 mg/kg
  - Method: Acute toxicity estimate

**Skin corrosion/irritation:**
- Species: Rabbit
  - Result: Causes burns.
  - Method: OECD Test Guideline 404
  - Information taken from reference works and the literature.

**Serious eye damage/eye irritation:**
- Species: Rabbit
  - Result: Risk of serious damage to eyes.
  - Method: OECD Test Guideline 405
  - Information taken from reference works and the literature.
Respiratory or skin sensitisation: Maximisation Test  
Species: Guinea pig  
Result: Does not cause skin sensitisation.  
Information taken from reference works and the literature.

Germ cell mutagenicity

Genotoxicity in vitro: Ames test  
Salmonella typhimurium  
Result: negative  
Method: OECD Test Guideline 471  
Information taken from reference works and the literature.

Genotoxicity in vivo: Species: Mouse  
Method: Mutagenicity (micronucleus test)  
Result: negative  
Information taken from reference works and the literature.

Carcinogenicity: study scientifically unjustified

Reproductive toxicity: Not classified due to data which are conclusive although insufficient for classification.

STOT - single exposure: May cause respiratory irritation.

STOT - repeated exposure: Not classified due to data which are conclusive although insufficient for classification.

Aspiration hazard: Not classified due to data which are conclusive although insufficient for classification.

SECTION 12: ECOLOGICAL INFORMATION

Product information: Ecotoxicology Assessment

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life.  
Harmful to aquatic life with long lasting effects.

12.1 Toxicity

Components:

Test result

Ethanolamine  
Toxicity to fish: LC50: 349 mg/l  
Exposure time: 96 h  
Species: Cyprinus carpio (Carp)  
Test Type: semi-static test  
Method: Tested according to Directive 92/69/EEC.  
Information taken from reference works and the literature.
Toxicity to daphnia and other aquatic invertebrates:
EC50: 65 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Test Type: static test
Method: 84/449/EEC C.2
Information taken from reference works and the literature.

Toxicity to algae:
EC50: 2.8 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Method: OECD Test Guideline 201
Information taken from reference works and the literature.

Toxicity to fish (Chronic toxicity):
NOEC: 1.2 mg/l
Exposure time: 30 d
Species: Oryzias latipes (Orange-red killifish)
Method: OECD Test Guideline 210
Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC: 0.85 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202
Information taken from reference works and the literature.

12.2 Persistence and degradability

Product information:
Biodegradability: Result: Readily biodegradable.

Components:
Ethanolamine
Biodegradability: Result: Readily biodegradable.
Method: OECD Test Guideline 301E

12.3 Bioaccumulative potential

Product information:
Bioaccumulation: Not expected considering the low log Pow value.

Components:
Ethanolamine
Bioaccumulation: Not expected considering the low log Pow value.

12.4 Mobility in soil

Product information:
Mobility: Adsorption to the solid soil particles is not expected.
Transport to air is not expected.

Components:
Ethanolamine
Mobility: Mobile in soils
Transport to air is not expected.

12.5 Results of PBT and vPvB assessment
Product information:
PBT and vPvB 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:
- Ethanolamine
  PBT and vPvB assessment: This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic)
  This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

12.6 Other adverse effects

Product information:
- Biochemical Oxygen Demand (BOD): No data available

Components:
- Ethanolamine
  Biochemical Oxygen Demand (BOD): 800 mg/g

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: The product should not be allowed to enter drains, water courses or the soil.
- Do not contaminate ponds, waterways or ditches with chemical or used container.
- Hazardous waste
- Dispose of contents/container in accordance with local regulation.

Contaminated packaging: Empty remaining contents.
- Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number
- ADR: UN 2491
- RID: UN 2491
- IMDG-Code: UN 2491
- IATA-DGR: UN 2491

14.2 Proper shipping name
- ADR: ETHANOLAMINE
- RID: ETHANOLAMINE
- IMDG-Code: ETHANOLAMINE
- IATA-DGR: Ethanolamine

14.3 Transport hazard class
- ADR: 8
- RID: 8
- IMDG-Code: 8
- IATA-DGR: 8
14.4 Packing group

ADR
Packing group : III
Classification Code : C7
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : (E)

RID
Packing group : III
Classification Code : C7
Hazard Identification Number : 80
Labels : 8

IMDG-Code
Packing group : III
Labels : 8
EmS Code : F-A, S-B

IATA-DGR
Packing instruction (cargo aircraft) : 856
Packing instruction (passenger aircraft) : 852
Packing instruction (LQ) : Y841
Packing group : III
Labels : 8

14.5 Environmental hazards

ADR
Environmentally hazardous : no

RID
Environmentally hazardous : no

IMDG-Code
Marine pollutant : no

IATA-DGR
Environmentally hazardous : no

14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Not applicable

Notification status

DSL : YES. All components of this product are on the Canadian DSL
AICS : YES. On the inventory, or in compliance with the inventory
NZIoC : YES. On the inventory, or in compliance with the inventory
ENCS : YES. On the inventory, or in compliance with the inventory
ISHL: YES. On the inventory, or in compliance with the inventory
KECI: YES. On the inventory, or in compliance with the inventory
PICCS: YES. On the inventory, or in compliance with the inventory
IECSC: YES. On the inventory, or in compliance with the inventory
TCSI: YES. On the inventory, or in compliance with the inventory
TSCA: YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

For explanation of abbreviation see section 16.

15.2 Chemical safety assessment

Ethanolamine: A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.
H302: Harmful if swallowed.
H312: Harmful in contact with skin.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H332: Harmful if inhaled.
H335: May cause respiratory irritation.
H412: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations
2006/15/EC: Europe. Indicative occupational exposure limit values
GB EH40: UK. EH40 WEL - Workplace Exposure Limits
2006/15/EC / TWA: Limit Value - eight hours
2006/15/EC / STEL: Short term exposure limit
GB EH40 / TWA: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL: Short-term exposure limit (15-minute reference period)

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; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect
Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

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.
Annex :

Formulation of preparations

Use as an intermediate

Industrial uses, Additive in concrete and cement

Professional uses, Additive in concrete and cement

Gas treatment

Water treatment chemicals

Industrial uses, Use in metal working fluids/rolling oils

Professional uses, Use in metal working fluids/rolling oils

Industrial uses, Use in electroplating

Industrial uses, Use as additive in plastic, e.g. rubber

Professional uses, Use as additive in plastic, e.g. rubber

Processing aid for paper, textile, leather

Industrial use in Detergents and cleaners

Professional use in Detergents and cleaners

Use of detergents and cleaners

Use in Personal care products

Wood protection formulations

Wood protection formulations

Wood protection formulations

Industrial application of coatings and inks

Professional application of coatings and inks

Consumer application of coatings

Industrial uses, Use in oilfield applications

Professional uses, Use in oilfield applications

Industrial uses, Adhesives, sealants

Professional uses, Adhesives, sealants

Use in adhesives and sealants (Consumer)
\(1.\) Laboratory Reagents

\(2.\) Laboratory Reagents
1. Short title of Exposure Scenario: Formulation of preparations

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

Environmental Release Categories: ERC2: Formulation of preparations

Process categories:
- 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 preparations and articles (multistage and/or significant contact)
- 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)

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

Amount used
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 10%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 0.285714 kg/day

Environment factors not influenced by risk management
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 350
- Emission or Release Factor: Air: 0%
- Emission or Release Factor: Water: 0.06%
- Emission or Release Factor: Soil: 0%
- Remarks: AISE SPERC 2.1.g.v1

Technical conditions and measures / Organizational measures
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine
MONOETHANOLAMINE (MEA)

Conditions and measures related to municipal sewage treatment plant

<table>
<thead>
<tr>
<th>Type of Sewage Treatment Plant</th>
<th>Percentage removed from waste water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal sewage treatment plant</td>
<td>99 %</td>
</tr>
</tbody>
</table>

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use): liquid

Frequency and duration of use

Exposure duration: < 480 min

Remarks: Inhalation, Dermal

Frequency of use: <= 240 days/year

Human factors not influenced by risk management

Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use): liquid
Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.

In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness of a measure): 90 %

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.
2.6 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: 1 - 4 h
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year
Human factors not influenced by risk management
   Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Technical conditions and measures
   Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent / limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented
   Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
   Specific worker training
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   Gloves APF 20 (Effectiveness (of a measure): 95 %)
   Wear suitable coveralls to prevent exposure to the skin.
   Use suitable eye protection.

2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
   Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
   Physical Form (at time of use) : liquid

Frequency and duration of use
   Exposure duration : < 480 min
   Remarks : Inhalation, Dermal
   Frequency of use : <= 240 days/year

Human factors not influenced by risk management
   Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Technical conditions and measures
   Local exhaust ventilation (Effectiveness (of a measure): 95 %)
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.
### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC2</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.000537</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>Sewage treatment plant</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.02545 mg/m³</td>
<td>0.00771</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00171 mg/kg bw/day</td>
<td>0.00156</td>
<td></td>
</tr>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.545 mg/m³</td>
<td>0.77121</td>
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</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.0686 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.7635 mg/m³</td>
<td>0.23136</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.34286 mg/kg bw/day</td>
<td>0.31169</td>
<td></td>
</tr>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.4581 mg/m³</td>
<td>0.13882</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
<td></td>
</tr>
</tbody>
</table>
### Table: ECETOC TRA Values for MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>PROC Code</th>
<th>Calculation Method</th>
<th>Exposure Route</th>
<th>ECETOC TRA Value</th>
<th>GB Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.19088 mg/m³</td>
<td>0.05784</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
</tr>
<tr>
<td>ERC2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ERC2: Formulation of preparations**

**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 preparations and articles (multistage and/or significant contact)

**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)

---

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

For further information, please also consult our Internet site: Downstream Users

1. Short title of Exposure Scenario: Formulation of preparations

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

Environmental Release Categories: ERC8b: Wide dispersive indoor use of reactive substances in open systems

Process categories:
- 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 preparations and articles (multistage and/or significant contact)
- 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)

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

Activity: Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics:
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use:
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management:
- Dermal exposure: Palm of one hand (240 cm²)
Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness of a measure): 80 %

Organisational measures to prevent /limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
  In case of exposure:
    Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
    (Effectiveness of a measure): 95 %
  Use suitable eye protection.

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

Product characteristics
  Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
  Physical Form (at time of use) : liquid

Frequency and duration of use
  Exposure duration : < 480 min
  Remarks : Inhalation, Dermal
  Frequency of use : <= 240 days/year

Human factors not influenced by risk management
  Dermal exposure : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness of a measure): 80 %

Organisational measures to prevent /limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented
  Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
  Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
MONOETHANOLAMINE (MEA)

(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics

<table>
<thead>
<tr>
<th>Concentration of the Substance in Mixture/Article</th>
<th>Covers the percentage of the substance in the product up to 100 % (unless stated differently).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
</tr>
</tbody>
</table>

Frequency and duration of use

<table>
<thead>
<tr>
<th>Exposure duration</th>
<th>1 - 4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>&lt;= 240 days/year</td>
</tr>
</tbody>
</table>

Human factors not influenced by risk management

Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor: Indoor

Technical conditions and measures

Local exhaust ventilation (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)
Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

<table>
<thead>
<tr>
<th>Concentration of the Substance in Mixture/Article</th>
<th>Covers the percentage of the substance in the product up to 100 % (unless stated differently).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
</tr>
</tbody>
</table>
Frequency and duration of use
   Exposure duration : 1 - 4 h
   Remarks : Inhalation, Dermal
   Frequency of use : <= 240 days/year

Human factors not influenced by risk management
   Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Technical conditions and measures
   Local exhaust ventilation (Effectiveness (of a measure): 80 %)

Organisational measures to prevent / limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented
   Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   (Effectiveness (of a measure): 95 %)
   Wear suitable coveralls to prevent exposure to the skin.
   Wear respiratory protection. (Effectiveness (of a measure): 90 %)
   Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
   Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
   Physical Form (at time of use) : liquid

Frequency and duration of use
   Exposure duration : 15 - 60 min
   Remarks : Inhalation, Dermal
   Frequency of use : <= 240 days/year

Human factors not influenced by risk management
   Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Technical conditions and measures
   Local exhaust ventilation (Effectiveness (of a measure): 90 %)
**MONOETHANOLAMINE (MEA)**

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: 15 - 60 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
Use suitable eye protection.
3. Exposure estimation and reference to its source

Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.527 mg/m³</td>
<td>0.46273</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.34286 mg/kg bw/day</td>
<td>0.31169</td>
<td></td>
</tr>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.3054 mg/m³</td>
<td>0.09255</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.53445 mg/m³</td>
<td>0.16196</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
<td></td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
<td></td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.018 mg/m³</td>
<td>0.30849</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.34286 mg/kg bw/day</td>
<td>0.31169</td>
<td></td>
</tr>
</tbody>
</table>

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 preparations and articles (multistage and/or significant contact)
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)

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

For further information, please also consult our Internet site: Downstream Users
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

Environmental Release Categories: ERC6a: Use of intermediate

Process categories:
- 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)

2.1 Contributing scenario controlling environmental exposure for: ERC6a: Use of intermediate

Amount used
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 100%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 5 kg/day

Environment factors not influenced by risk management
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 200
- Emission or Release Factor: Air: 0%
- Emission or Release Factor: Water: 0.005%
- Emission or Release Factor: Soil: 0.01%

Technical conditions and measures / Organizational measures
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Air: Waste gas treatment by thermal oxidation, Exhaust air scrubber
- Water: Aerobic biological treatment
- Soil: Sealing of all relevant soil surfaces in the facility is required, Sewage sludge incineration, No application of sewage sludge
2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100% (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palm of one hand (240 cm²)

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

Organisational measures to prevent/limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100% (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year
Human factors not influenced by risk management
  Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
  In case of exposure:
  Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  Gloves APF 20 (Effectiveness (of a measure): 95 %)
  Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
  Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
  Physical Form (at time of use) : liquid

Frequency and duration of use
  Exposure duration : < 480 min
  Remarks : Inhalation, Dermal
  Frequency of use : <= 240 days/year

Human factors not influenced by risk management
  Dermal exposure : Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent / limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: 1 - 4 h
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

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

Technical conditions and measures
- Local exhaust ventilation (Effectiveness of a measure): 90 %

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use
MONOETHANOLAMINE (MEA)

Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)
Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartments</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC6a</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
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<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.02545 mg/m³</td>
<td>0.00771</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00171 mg/kg bw/day</td>
<td>0.00156</td>
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<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.545 mg/m³</td>
<td>0.77121</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.06857</td>
<td>0.06234</td>
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</table>
### MONOETHANOLAMINE (MEA)

**Table 1:**

<table>
<thead>
<tr>
<th>PROC</th>
<th>ECETOC TRA</th>
<th>Exposure Route</th>
<th>Long term dermal</th>
<th>mg/kg bw/day</th>
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</thead>
<tbody>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.7635 mg/m³</td>
<td>0.23136</td>
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<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.4581 mg/m³</td>
<td>0.13882</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.19088 mg/m³</td>
<td>0.05784</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.34286 mg/kg bw/day</td>
<td>0.31169</td>
</tr>
</tbody>
</table>

**ERC6a:** Use of intermediate
**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)

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Industrial uses, Additive in concrete and cement

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

Environmental Release Categories: ERC5: Industrial use resulting in inclusion into or onto a matrix

Process categories:
- 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
- PROC10: Roller application or brushing
- PROC13: Treatment of articles by dipping and pouring
- CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation
- PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC5: Industrial use resulting in inclusion into or onto a matrix

Amount used:
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 100%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 4.545 kg/day

Environment factors not influenced by risk management:
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure:
- Number of emission days per year: 220
- Emission or Release Factor: Air: 1.7%
- Emission or Release Factor: Water: 0%
- Emission or Release Factor: Soil: 0%
- Remarks: EFCC SPERC 5.1a.v1

Technical conditions and measures / Organizational measures:
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Air: Waste gas treatment by thermal oxidation, Exhaust air scrubber
- Water: Aerobic biological treatment
- Soil: Sealing of all relevant soil surfaces in the facility is required, Sewage sludge incineration, No application of sewage sludge
Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

Conditions and measures related to external treatment of waste for disposal

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 1 %.
Physical Form (at time of use): liquid

Amount used
Application rate: > 3 L/min

Frequency and duration of use
Exposure duration: < 300 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Outdoor
Remarks: Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCS followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)
Wear suitable face shield.

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

Activity: Option 1

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 1 %.
Physical Form (at time of use): liquid

Amount used
**MONOETHANOLAMINE (MEA)**

Application rate: > 3 L/min

**Frequency and duration of use**
- Exposure duration: < 80 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Remarks:** Inhalation, Dermal

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
- Spraying with high compressed air use

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)
Wear suitable face shield.

**2.4 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying**

Activity: Option 2

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 1 %.
- Physical Form (at time of use): liquid

**Amount used**
- Application rate: > 3 L/min

**Frequency and duration of use**
- Exposure duration: < 240 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
- Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)
Wear suitable face shield.

2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Outdoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

2.6 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
MONOETHANOLAMINE (MEA)

Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Outdoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.
2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Outdoor
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

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

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<tr>
<th>Product characteristics</th>
<th></th>
</tr>
</thead>
</table>
| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%.
| Physical Form (at time of use) | liquid

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure duration</td>
<td>&lt; 480 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
</tbody>
</table>
| Frequency of use | <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

### 2.11 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th></th>
</tr>
</thead>
</table>
| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%.
| Physical Form (at time of use) | liquid

| Frequency and duration of use |  |
MONOETHANOLAMINE (MEA)

Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Outdoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.12 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.
2.13 Contributing scenario controlling worker exposure for: CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.  
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min  
Remarks: Inhalation, Dermal  
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented  
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.  
Gloves APF 20 (Effectiveness (of a measure): 95 %)  
Wear suitable coveralls to prevent exposure to the skin.  
Use suitable eye protection.

2.14 Contributing scenario controlling worker exposure for: CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.  
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min  
Remarks: Inhalation, Dermal  
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented  
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.15 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC5</td>
<td>EUSES</td>
<td></td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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<td></td>
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<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001</td>
<td>&lt; 0.0001</td>
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</table>
## Marine sediment

<table>
<thead>
<tr>
<th>Workers</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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</thead>
<tbody>
<tr>
<td>PROC7</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>2.1 mg/m³</td>
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<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
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<tr>
<td>PROC7</td>
<td>ART</td>
<td>Long term inhalation</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
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<tr>
<td>PROC7</td>
<td>ART</td>
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<td>2.5 mg/m³</td>
<td>0.75758</td>
<td></td>
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<tr>
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<td>ECETOC TRA</td>
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<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.89075 mg/m³</td>
<td>0.26992</td>
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</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
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<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
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<td>0.44538 mg/m³</td>
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<tr>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
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<td></td>
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<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.63625 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
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<td>0.89075 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
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</tr>
<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.89075 mg/m³</td>
<td>0.26992</td>
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</table>
### MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Source</th>
<th>Type</th>
<th>Long Term</th>
<th>Long Term</th>
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</thead>
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<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
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<td>0.03429 mg/kg bw/day</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
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<tr>
<td>CS100</td>
<td>ECETOC TRA</td>
<td>dermal</td>
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<tr>
<td>CS100</td>
<td>ECETOC TRA</td>
<td>inhalation</td>
<td>0.63625 mg/m³</td>
<td>0.19280</td>
</tr>
<tr>
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<td>ECETOC TRA</td>
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<td>0.00086 mg/kg bw/day</td>
<td>0.00078</td>
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<tr>
<td>PROC15</td>
<td>ECETOC TRA</td>
<td>inhalation</td>
<td>0.63625 mg/m³</td>
<td>0.19280</td>
</tr>
</tbody>
</table>

**CS100:** Production or preparation or articles by tabletting, compression, extrusion or pelletisation

**ERC5:** Industrial use resulting in inclusion into or onto a matrix

**PROC10:** Roller application or brushing

**PROC13:** Treatment of articles by dipping and pouring

**PROC15:** Use as laboratory reagent

**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

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

For further information, please also consult our Internet site: Downstream Users

1. Short title of Exposure Scenario: Professional uses, Additive in concrete and cement

Main User Groups : SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental Release Categories : ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Process categories : PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROCFa: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC10: Roller application or brushing
PROC11: Non-industrial spraying
PROC13: Treatment of articles by dipping and pouring

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

Amount used
Regional use tonnage : 1 ton(s)/year
Fraction of EU tonnage used in region: : 10%
Fraction of Regional tonnage used locally: : 0.2%
Maximum daily site tonnage (kg/day): : 0.000548 kg/day

Environment factors not influenced by risk management
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure
Number of emission days per year : 365
Emission or Release Factor: Air : 0%
Emission or Release Factor: Water : 1%
Emission or Release Factor: Soil : 3%
Remarks : EFCC-SPERC 8F.1a.v1

Technical conditions and measures / Organizational measures
Compartment : Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
Water : Aerobic biological treatment

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
2.2 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Product characteristics
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 5%.
- **Physical Form (at time of use)**: liquid
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Palms of both hands (480 cm²)

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

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - **Effectiveness** (of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Product characteristics
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 5%.
- **Physical Form (at time of use)**: liquid
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Palms of both hands (480 cm²)

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

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

### 2.4 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

**Product characteristics**

- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**

- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

- Dermal exposure: Both hands (960 cm²)

**Other operational conditions affecting workers exposure**

- Outdoor / Indoor: Outdoor

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

Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

### 2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

**Product characteristics**

- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**

- Exposure duration: 1 - 4 h
- Remarks: Inhalation, Dermal
Frequency of use: \(<= 240\) days/year

Human factors not influenced by risk management:
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent / limit releases, dispersion and exposure:
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Organisational measures to prevent / limit releases, dispersion and exposure:
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

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

Product characteristics:
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use:
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: \(<= 240\) days/year

Human factors not influenced by risk management:
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent / limit releases, dispersion and exposure:
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

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

Product characteristics:
MONOETHANOLAMINE (MEA)

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.8 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 1 %.
Physical Form (at time of use): liquid

Amount used
Application rate: > 3 L/min

Frequency and duration of use
Exposure duration: < 300 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Outdoor
, Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)
Wear suitable face shield.

2.9 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 1 %.
Physical Form (at time of use) : liquid

Amount used
Application rate : > 3 L/min

Frequency and duration of use
Exposure duration : < 180 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor,
, Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)
Wear suitable face shield.

2.10 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5 %.
Physical Form (at time of use) : liquid
**Frequency and duration of use**

<table>
<thead>
<tr>
<th>Exposure duration</th>
<th>Remarks</th>
<th>Frequency of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 480 min</td>
<td>Inhalation, Dermal</td>
<td>&lt;= 240 days/year</td>
</tr>
</tbody>
</table>

**Human factors not influenced by risk management**

| Dermal exposure | Palms of both hands (480 cm²) |

**Other operational conditions affecting workers exposure**

| Outdoor / Indoor | Outdoor |

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

Assumes a good basic standard of occupational hygiene is implemented

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - Effectiveness (of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Wear suitable face shield.

### 2.11 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

**Product characteristics**

<table>
<thead>
<tr>
<th>Concentration of the Substance in Mixture/Article</th>
<th>Covers the percentage of the substance in the product up to 5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
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</tbody>
</table>

**Frequency and duration of use**

<table>
<thead>
<tr>
<th>Exposure duration</th>
<th>Remarks</th>
<th>Frequency of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 480 min</td>
<td>Inhalation, Dermal</td>
<td>&lt;= 240 days/year</td>
</tr>
</tbody>
</table>

**Human factors not influenced by risk management**

| Dermal exposure | Palms of both hands (480 cm²) |

**Other operational conditions affecting workers exposure**

| Outdoor / Indoor | Indoor |

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

Assumes a good basic standard of occupational hygiene is implemented

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - Effectiveness (of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Wear suitable face shield.

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

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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</thead>
<tbody>
<tr>
<td>ERC8f</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001 mg/L</td>
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<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001 mg/L</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001 mg/L</td>
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</tr>
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</table>

## Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.89075 mg/m³</td>
<td>0.26992 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.227 mg/m³</td>
<td>0.67481 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.909 mg/m³</td>
<td>0.57841 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.227 mg/m³</td>
<td>0.67481 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.227 mg/m³</td>
<td>0.67481 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>PROC11</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>2.1 mg/m³</td>
<td>0.63636 mg/m³</td>
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</table>
### MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>Procedure Code</th>
<th>Activity Description</th>
<th>Exposure Route</th>
<th>No. of Units (mg/kg bw day)</th>
<th>80% CI</th>
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</thead>
<tbody>
<tr>
<td>PROC11 ART</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03348 mg/kg bw/day</td>
<td>0.03044</td>
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<td></td>
<td></td>
<td>Long term inhalation</td>
<td>2.4 mg/m³</td>
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<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02009 mg/kg bw/day</td>
<td>0.01826</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term inhalation</td>
<td>0.89075 mg/m³</td>
<td>0.26992</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
</tr>
</tbody>
</table>

- ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
- PROC10: Roller application or brushing
- PROC11: Non-industrial spraying
- PROC13: Treatment of articles by dipping and pouring
- PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

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

For further information, please also consult our Internet site: Downstream Users [http://guidance.echa.europa.eu/downstream_users_en.htm](http://guidance.echa.europa.eu/downstream_users_en.htm)
1. Short title of Exposure Scenario: Gas treatment

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

Environmental Release Categories: ERC7: Industrial use of substances in closed systems

Process categories:
- 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

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

**Amount used**
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 100%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 2.857 kg/day

**Environment factors not influenced by risk management**
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

**Other given operational conditions affecting environmental exposure**
- Number of emission days per year: 350
- Emission or Release Factor: Air: 0.1%
- Emission or Release Factor: Water: 0.06%
- Emission or Release Factor: Soil: 0%

**Technical conditions and measures / Organizational measures**
- **Compartment**: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- **Air**: Waste gas treatment by thermal oxidation, Exhaust air scrubber
- **Water**: Aerobic biological treatment
- **Soil**: Sealing of all relevant soil surfaces in the facility is required, Sewage sludge incineration, No application of sewage sludge to soil
Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Organisational measures to prevent /limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
   Provide adequate information, instruction and training for operators.
   In case of exposure:
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   Gloves APF 20 (Effectiveness (of a measure): 95 %)
   Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration of the Substance in Mixture/Article</td>
<td>Covers the percentage of the substance in the product up to 100 % (unless stated differently).</td>
<td></td>
</tr>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure duration</td>
<td>&lt; 480 min</td>
<td></td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
<td></td>
</tr>
<tr>
<td>Frequency of use</td>
<td>&lt; = 240 days/year</td>
<td></td>
</tr>
</tbody>
</table>

Human factors not influenced by risk management
   Dermal exposure : Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Technical conditions and measures
   Local exhaust (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
   Provide adequate information, instruction and training for operators.
   Use suitable eye protection.
   Gloves APF 20 (Effectiveness (of a measure): 95 %)
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   In case of exposure:
### 2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

**Product characteristics**
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 100% (unless stated differently).
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: 1 - 4 h
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Both hands (960 cm²)

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

**Technical conditions and measures**
- **Local exhaust ventilation** (Effectiveness of a measure): 90%

**Organisational measures to prevent /limit releases, dispersion and exposure**
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness of a measure): 95%
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

### 2.6 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

**Product characteristics**
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 100% (unless stated differently).
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year
Human factors not influenced by risk management
  Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
  In case of exposure:
    Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
    Gloves APF 20 (Effectiveness (of a measure): 95 %)
    Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC7</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>0.00029</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td></td>
<td>0.00013 mg/kg dry weight</td>
<td>0.00029</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>0.00030</td>
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<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00029</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Workers
## MONOETHANOLAMINE (MEA)

### Contributing Scenario | Exposure Assessment Method | Specific conditions | Value | Level of Exposure | RCR |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.02545 mg/m³</td>
<td>0.00771</td>
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</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00171 mg/kg bw/day</td>
<td>0.00156</td>
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<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.545 mg/m³</td>
<td>0.77121</td>
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</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.7635 mg/m³</td>
<td>0.23136</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.4581 mg/m³</td>
<td>0.13882</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
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<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.19088 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
<td>0.62338</td>
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</tr>
</tbody>
</table>

**ERC7**: Industrial use of substances in closed systems  
**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

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

For further information, please also consult our Internet site: Downstream Users  
1. Short title of Exposure Scenario: Water treatment chemicals

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

Environmental Release Categories:
- ERC7: Industrial use of substances in closed systems

Process categories:
- 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
- PROC13: Treatment of articles by dipping and pouring

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

Amount used:
- Regional use tonnage: 1 ton(s)/year
- Fraction of EU tonnage used in region: 100%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 4,545 kg/day

Environment factors not influenced by risk management:
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure:
- Number of emission days per year: 220
- Emission or Release Factor: Air: 0%
- Emission or Release Factor: Water: 0.06%
- Emission or Release Factor: Soil: 0%

Technical conditions and measures / Organizational measures:
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Air: Waste gas treatment by thermal oxidation, Exhaust air scrubber
- Water: Aerobic biological treatment
- Soil: Sealing of all relevant soil surfaces in the facility is required,
Sewage sludge incineration, No application of sewage sludge to soil

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
### MONOETHANOLAMINE (MEA)

**Dermal exposure**: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**

Outdoor / Indoor: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented

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

Provide adequate information, instruction and training for operators.

In case of exposure:

- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Use suitable eye protection.

---

### 2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

**Product characteristics**

- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- Physical Form (at time of use): liquid

**Frequency and duration of use**

- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

Dermal exposure: Palm of one hand (240 cm²)

**Other operational conditions affecting workers exposure**

Outdoor / Indoor: Indoor

**Technical conditions and measures**

Local exhaust ventilation (Effectiveness (of a measure): 90 %)

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

Assumes a good basic standard of occupational hygiene is implemented

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

Provide adequate information, instruction and training for operators.

In case of exposure:
MONOETHANOLAMINE (MEA)

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

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm2)

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

Technical conditions and measures
- Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: 1 - 4 h
- Remarks: Inhalation, Dermal
**MONOETHANOLAMINE (MEA)**

**Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Both hands (960 cm²)

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

**Technical conditions and measures**
- **Local exhaust ventilation** (Effectiveness (of a measure): 90 %)

**Organisational measures to prevent /limit releases, dispersion and exposure**
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

### 2.7 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

**Product characteristics**
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Both hands (960 cm²)

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

**Technical conditions and measures**
- **Local exhaust ventilation** (Effectiveness (of a measure): 95 %)

**Organisational measures to prevent /limit releases, dispersion and exposure**
- Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.8 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: 1 - 4 h
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

3. Exposure estimation and reference to its source

Environment
## Contributing Scenario

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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<tbody>
<tr>
<td>ERC7</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
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<td>Marine sediment</td>
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<td>Soil</td>
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<td>Sewage treatment plant</td>
<td>0.00017 mg/L</td>
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<td>&lt; 0.0001</td>
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### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.02545 mg/m³</td>
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<td></td>
<td>ECETOC TRA</td>
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<td>Long term dermal</td>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
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<td>0.62338</td>
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<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.4581 mg/m³</td>
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<td>0.13882</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.68571 mg/kg bw/day</td>
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<td>0.62338</td>
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</tbody>
</table>
**MONOETHANOLAMINE (MEA)**

ERC7: Industrial use of substances in closed systems
PROC1: Use in closed process, no likelihood of exposure
PROC13: Treatment of articles by dipping and pouring
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

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Industrial uses, Use in metal working fluids/rolling oils

Main User Groups : SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories : ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process categories :
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- 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
- PROC13: Treatment of articles by dipping and pouring
- PROC17: Lubrication at high energy conditions in metal working operations
- PROC18: General greasing/lubrication at high kinetic energy conditions

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amount used
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 100 %
- Fraction of Regional tonnage used locally: 100 %
- Maximum daily site tonnage (kg/day): 10 kg/day

Environment factors not influenced by risk management
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 100
- Emission or Release Factor: Air: 2 %
- Emission or Release Factor: Water: 0.1 %
- Emission or Release Factor: Soil: 0 %
- Remarks: ESVOC SpERC 4.7a.v1

Technical conditions and measures / Organizational measures
### Compartment
- Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant

### Air
- Waste gas treatment by thermal oxidation, Filtration, Adsorption, Exhaust air scrubber

### Water
- Oil-water separation, Aerobic biological treatment

### Soil
- Sealing of all relevant soil surfaces in the facility is required, Sewage sludge incineration, No application of sewage sludge to soil

### Conditions and measures related to municipal sewage treatment plant
- **Type of Sewage Treatment Plant**: Municipal sewage treatment plant

### 2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

#### Product characteristics
- **Concentration of the Substance in Mixture/Article**: Covers percentage substance in the product up to 10%.
- **Physical Form (at time of use)**: liquid

#### Frequency and duration of use
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

#### Human factors not influenced by risk management
- **Dermal exposure**: Palms of both hands (480 cm²)

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

#### Organisational measures to prevent/limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation
- Provide adequate information, instruction and training for operators.
- In case of exposure:
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - Gloves APF 20 (Effectiveness of a measure): 95 %
  - Use suitable eye protection.

### 2.3 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

#### Product characteristics
- **Concentration of the Substance in Mixture/Article**: Covers percentage substance in the product up to 10%.
- **Physical Form (at time of use)**: liquid
Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.
2.5 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
- Provide adequate information, instruction and training for operators.
- In case of exposure:
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - Gloves APF 20 (Effectiveness of a measure): 95 %
  - Use suitable eye protection.

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

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: 1 - 4 h
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
- Outdoor / Indoor: Indoor
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.7 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm²)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.8 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions in metal working operations

Activity: Application of liquids in high speed processes (large scale)

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid
Frequency and duration of use
Exposure duration : < 240 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Room size : 300 m3
Temperature : > 20 °C
Ventilation rate per hour : 3

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear suitable coveralls to prevent exposure to the skin.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC18: General greasing/lubrication at high kinetic energy conditions

Activity : Application of liquids in high speed processes (large scale)
Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 10%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 240 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Room size : 300 m3
Temperature : > 20 °C
Ventilation rate per hour : 3

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Specific worker training
Wear suitable coveralls to prevent exposure to the skin.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartments</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC4</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
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<td>Fresh water sediment</td>
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<td>0.00014 mg/kg dry weight</td>
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<td>Marine water</td>
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<td></td>
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<td>Marine sediment</td>
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<td>&lt; 0.0001 mg/kg dry weight</td>
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<td>Soil</td>
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<td>Sewage treatment plant</td>
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<td>0.0002 mg/L</td>
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Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
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<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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<tbody>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
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<td>ECETOC TRA</td>
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<td>PROC5</td>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
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<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.545 mg/m³</td>
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### MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>PROC</th>
<th>ECETOC TRA</th>
<th>Exposure Type</th>
<th>Concentration</th>
<th>Margin</th>
<th>Note</th>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
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<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>1.527 mg/m³</td>
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<td>ECETOC TRA</td>
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<td>0.13714 mg/kg bw/day</td>
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<td>PROC13</td>
<td>ECETOC TRA</td>
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<td>2.545 mg/m³</td>
<td>0.77121</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
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<td>PROC17</td>
<td>ART</td>
<td>Long term dermal</td>
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<tr>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
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<td>PROC18</td>
<td>ART</td>
<td>Long term dermal</td>
<td>2.1 mg/m³</td>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
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</tr>
</tbody>
</table>

**ERC4**: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

**PROC10**: Roller application or brushing

**PROC13**: Treatment of articles by dipping and pouring

**PROC17**: Lubrication at high energy conditions in metal working operations

**PROC18**: General greasing/lubrication at high kinetic energy conditions

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

**PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

**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

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

For further information, please also consult our Internet site: Downstream Users

1. Short title of Exposure Scenario: Professional uses, Use in metal working fluids/rolling oils

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

Environmental Release Categories: ERC8a: Wide dispersive indoor use of processing aids in open systems

Process categories: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
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
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions in metal working operations
PROC18: General greasing/lubrication at high kinetic energy conditions
PROC20: Use of functional fluids in small devices

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

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 10 %
Fraction of Regional tonnage used locally: 0.05 %
Maximum daily site tonnage (kg/day): 0.000137 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 365
Emission or Release Factor: Air: 1.5 %
Emission or Release Factor: Water: 5 %
Emission or Release Factor: Soil: 5 %
Remarks: ESVOC SpERC 8.7c.v1

Conditions and measures related to municipal sewage treatment plant
MONOETHANOLAMINE (MEA)

Type of Sewage Treatment Plant: Municipal sewage treatment plant

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness of a measure): 80%

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness of a measure): 95%
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness of a measure): 80%

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness of a measure): 95%
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness of a measure): 95%
Use suitable eye protection.
2.5 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

**Product characteristics**

- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**

- Exposure duration: 15 - 60 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

- Dermal exposure: Both hands (960 cm²)

**Other operational conditions affecting workers exposure**

- Outdoor / Indoor: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Wear suitable face shield.

2.6 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

**Product characteristics**

- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**

- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

- Dermal exposure: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**

- Outdoor / Indoor: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.7 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions in metal working operations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Application of liquids in high speed processes, Option 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td></td>
</tr>
<tr>
<td>Concentration of the Substance in Mixture/Article</td>
<td>Covers percentage substance in the product up to 10%</td>
</tr>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td></td>
</tr>
<tr>
<td>Exposure duration</td>
<td>&lt; 90 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>&lt;= 240 days/year</td>
</tr>
</tbody>
</table>

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 100 m³
Temperature: > 20 °C
Ventilation rate per hour: 1

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness of a measure): 90 %

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.8 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions in metal working operations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Application of liquids in high speed processes, Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td></td>
</tr>
<tr>
<td>Concentration of the Substance in Mixture/Article</td>
<td>Covers percentage substance in the product up to 10%</td>
</tr>
</tbody>
</table>
MONOETHANOLAMINE (MEA)

Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Room size : 100 m3
Temperature : > 20 °C
Ventilation rate per hour : 1

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC18: General greasing/lubrication at high kinetic energy conditions

Activity : Application of liquids in high speed processes, Option 1
Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 10%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 90 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Room size : 100 m3
**MONOETHANOLAMINE (MEA)**

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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 suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

### 2.10 Contributing scenario controlling worker exposure for: PROC18: General greasing/lubrication at high kinetic energy conditions

<table>
<thead>
<tr>
<th>Activity</th>
<th>Application of liquids in high speed processes, Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td></td>
</tr>
<tr>
<td>Concentration of the Substance in Mixture/Article</td>
<td>Covers percentage substance in the product up to 10%</td>
</tr>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td></td>
</tr>
<tr>
<td>Exposure duration</td>
<td>&lt; 480 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>&lt;= 240 days/year</td>
</tr>
<tr>
<td>Human factors not influenced by risk management</td>
<td></td>
</tr>
<tr>
<td>Dermal exposure</td>
<td>Both hands (960 cm2)</td>
</tr>
<tr>
<td>Other operational conditions affecting workers exposure</td>
<td></td>
</tr>
<tr>
<td>Outdoor / Indoor</td>
<td>Indoor</td>
</tr>
<tr>
<td>Room size</td>
<td>100 m3</td>
</tr>
<tr>
<td>Temperature</td>
<td>&gt; 20 °C</td>
</tr>
<tr>
<td>Ventilation rate per hour</td>
<td>1</td>
</tr>
</tbody>
</table>

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %) Wear suitable coveralls to prevent exposure to the skin. Wear respiratory protection. (Effectiveness (of a measure): 90 %) Use suitable eye protection.

2.11 Contributing scenario controlling worker exposure for: PROC20: Use of functional fluids in small devices

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm²)

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

Organisational measures to prevent/limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %) Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8a</td>
<td>EUSES</td>
<td></td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>
## MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>Soil</th>
<th>Weight</th>
<th>&lt; 0.0001 mg/kg dry weight</th>
<th>0.00054</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewage treatment plant</td>
<td>Weight</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.06857 mg/m³</td>
<td>0.509</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06234 mg/kg bw/day</td>
<td>0.15424</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.545 mg/m³</td>
<td>0.77121</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.89075 mg/m³</td>
<td>0.26992</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.13714 mg/kg bw/day</td>
<td>0.12468</td>
<td></td>
</tr>
<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.545 mg/m³</td>
<td>0.77121</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC17</td>
<td>ART</td>
<td>Option 1</td>
<td>Long term inhalation</td>
<td>2.7 mg/m³</td>
<td>0.81818</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.02571 mg/kg bw/day</td>
<td>0.02338</td>
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<tr>
<td>PROC17</td>
<td>ART</td>
<td>Option 2</td>
<td>Long term inhalation</td>
<td>1.4 mg/m³</td>
<td>0.42424</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.13714 mg/kg bw/day</td>
<td>0.12468</td>
<td></td>
</tr>
<tr>
<td>PROC18</td>
<td>ART</td>
<td>Option 1</td>
<td>Long term inhalation</td>
<td>2.7 mg/m³</td>
<td>0.81818</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.01286 mg/kg bw/day</td>
<td>0.01169</td>
<td></td>
</tr>
<tr>
<td>PROC18</td>
<td>ART</td>
<td>Option 2</td>
<td>Long term inhalation</td>
<td>1.4 mg/m³</td>
<td>0.42424</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
<td></td>
</tr>
<tr>
<td>PROC20</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.00857 mg/kg bw/day</td>
<td>0.00779</td>
<td></td>
</tr>
</tbody>
</table>
ERC8a: Wide dispersive indoor use of processing aids in open systems
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions in metal working operations
PROC18: General greasing/lubrication at high kinetic energy conditions
PROC20: Use of functional fluids in small devices
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
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

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Industrial uses, Use in electroplating

| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Environmental Release Categories | ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) |
| Process categories | PROC2: Use in closed, continuous process with occasional controlled exposure |
| | PROC3: Use in closed batch process (synthesis or formulation) |
| | PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) |
| | 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) |
| | PROC13: Treatment of articles by dipping and pouring |

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

| Amount used | Regional use tonnage (tonnes/year): 1 ton(s)/year |
| Fraction of EU tonnage used in region: 100 % |
| Fraction of Regional tonnage used locally: 100 % |
| Maximum daily site tonnage (kg/day): 10 kg/day |

| Environment factors not influenced by risk management |
| Dilution Factor (River): 10 |
| Dilution Factor (Coastal Areas): 100 |

| Other given operational conditions affecting environmental exposure |
| Number of emission days per year: 100 |
| Emission or Release Factor: Air: 2 % |
| Emission or Release Factor: Water: 0.1 % |
| Emission or Release Factor: Soil: 0 % |
| Remarks: spERC: ESVOC SpERC 4.7a.v1 |

| Technical conditions and measures / Organizational measures |
| Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant |
| Air: Waste gas treatment by thermal oxidation, Filtration, Adsorption, Exhaust air scrubber |
| Water: Oil-water separation, Aerobic biological treatment |
Soil: Sealing of all relevant soil surfaces in the facility is required, sewage sludge incineration, no application of sewage sludge to soil

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant
Sludge Treatment: Sewage sludge incineration

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year
Human factors not influenced by risk management
  Dermal exposure : Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
  Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  Gloves APF 20 (Effectiveness of a measure): 95 %
  Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Product characteristics
  Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 30%.
  Physical Form (at time of use) : liquid

Frequency and duration of use
  Exposure duration : < 480 min
  Remarks : Inhalation, Dermal
  Frequency of use : <= 240 days/year

Human factors not influenced by risk management
  Dermal exposure : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
  Outdoor / Indoor : Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness of a measure): 90 %

Organisational measures to prevent / limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented
  Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
  Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2.5%
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Use suitable eye protection.

2.11 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2.5%
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Use suitable eye protection.

2.13 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 2.5%
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.
### 3. Exposure estimation and reference to its source

**Environment**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC4</td>
<td>EUSES</td>
<td></td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td></td>
<td>0.00084</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>0.00036 mg/kg dry weight</td>
<td></td>
<td>0.00084</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td></td>
<td>0.00084</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td></td>
<td>0.00084</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td></td>
<td>0.00063</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>0.00063 mg/L</td>
<td>&lt; 0.0001</td>
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</tr>
</tbody>
</table>

**Workers**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.7635 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02057 mg/kg bw/day</td>
<td>0.01870</td>
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<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>2.291 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01029 mg/kg bw/day</td>
<td>0.00935</td>
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</tr>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.3818 mg/m³</td>
<td>0.11568</td>
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<tr>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.20571 mg/kg bw/day</td>
<td>0.18701</td>
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<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.31813 mg/m³</td>
<td>0.09640</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.31813 mg/m³</td>
<td>0.09640</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01714 mg/kg bw/day</td>
<td>0.01558</td>
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<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.63625 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
</tbody>
</table>
ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
PROC13: Treatment of articles by dipping and pouring
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
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)

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Industrial uses, Use as additive in plastic, e.g. rubber

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

Environmental Release Categories: ERC5: Industrial use resulting in inclusion into or onto a matrix

Process categories:
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
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
CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation
PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC5: Industrial use resulting in inclusion into or onto a matrix

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 100 %
Fraction of Regional tonnage used locally: 100 %
Maximum daily site tonnage (kg/day): 3.333 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 300
Emission or Release Factor: Air: 0.1 %
Emission or Release Factor: Water: 0.7 %
Emission or Release Factor: Soil: 0.01 %
Remarks: ESVOC SpERC 9.12b.v1

Technical conditions and measures / Organizational measures
Compartment: Fresh water, Fresh water sediment, Marine water, Marine
MONOETHANOLAMINE (MEA)

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
Gloves APF 10 (Effectiveness of a measure): 90 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

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

Activity: Option 1, Spraying (automatic/robotic)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid
MONOETHANOLAMINE (MEA)

Amount used
Application rate : > 3 L/min

Frequency and duration of use
Exposure duration : < 420 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Room size : 300 m³
Ventilation rate per hour : 3
Remarks : Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness of a measure): 90 %

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear suitable coveralls to prevent exposure to the skin.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable face shield.

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

<table>
<thead>
<tr>
<th>Activity</th>
<th>Option 2, Manual spray application (liquid products)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td>Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 2%. Physical Form (at time of use) : liquid</td>
</tr>
<tr>
<td>Amount used</td>
<td>Application rate : &gt; 3 L/min</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td>Exposure duration : &lt; 300 min</td>
</tr>
</tbody>
</table>
MONOETHANOLAMINE (MEA)

Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 300 m³
Ventilation rate per hour: 3
Spraying with high compressed air use. Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)

2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent/ limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year
Human factors not influenced by risk management

Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented

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

Provide adequate information, instruction and training for operators.

In case of exposure:

- Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
- Gloves APF 10 (Effectiveness (of a measure): 90 %)
- Use suitable eye protection.

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

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 2%. |
| Physical Form (at time of use) | liquid |

Frequency and duration of use

| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
| Frequency of use | ≤ 240 days/year |

Human factors not influenced by risk management

Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure

Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Wear suitable face shield.
2.9 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.10 Contributing scenario controlling worker exposure for: CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation

Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.11 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm^2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

3. Exposure estimation and reference to its source

| Environment | ERC5 | EUSES | Fresh water | < 0.0001 mg/L | 0.00183 | Fresh water | 0.00079 | 0.00183 |
### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
<td>0.07712</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02743 mg/kg bw/day</td>
<td>0.02494</td>
<td></td>
</tr>
<tr>
<td>PROC7</td>
<td>ART</td>
<td>Spraying (automatic/robotic)</td>
<td>2.2 mg/m³</td>
<td>0.66667</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.0375 mg/kg bw/day</td>
<td>0.03409</td>
<td></td>
</tr>
<tr>
<td>PROC7</td>
<td>ART</td>
<td>Manual spray application (liquid products)</td>
<td>Long term inhalation</td>
<td>2.1 mg/m³</td>
<td>0.63636</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02679 mg/kg bw/day</td>
<td>0.02435</td>
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<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02743 mg/kg bw/day</td>
<td>0.02494</td>
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<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
<td>0.07712</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02743 mg/kg bw/day</td>
<td>0.02494</td>
<td></td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
<td>0.07712</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01371 mg/kg bw/day</td>
<td>0.01247</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02743 mg/kg bw/day</td>
<td>0.02494</td>
<td></td>
</tr>
<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01371 mg/kg bw/day</td>
<td>0.01247</td>
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<tr>
<td>CS100</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
<td>0.07712</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.00686</td>
<td>0.00623</td>
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</tbody>
</table>
### MONOETHANOLAMINE (MEA)

**CS100:** Production or preparation or articles by tabletting, compression, extrusion or pelletisation

**ERCS:** Industrial use resulting in inclusion into or onto a matrix

**PROC10:** Roller application or brushing

**PROC13:** Treatment of articles by dipping and pouring

**PROC15:** Use as laboratory reagent

**PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

**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)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Source</th>
<th>Exposure Type</th>
<th>Concentration (mg/kg bw/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC15</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00069 mg/kg bw/day</td>
</tr>
</tbody>
</table>

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

For further information, please also consult our Internet site: Downstream Users [http://guidance.echa.europa.eu/downstream_users_en.htm](http://guidance.echa.europa.eu/downstream_users_en.htm)
1. Short title of Exposure Scenario: Professional uses, Use as additive in plastic, e.g. rubber

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

Environmental Release Categories : ERC8f, ERC8c: Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use resulting in inclusion into or onto a matrix

Process categories : PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
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
CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation
PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC8f, ERC8c: Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use resulting in inclusion into or onto a matrix

Amount used
Regional use tonnage : 1 ton(s)/year
Fraction of EU tonnage used in region: 10 %
Fraction of Regional tonnage used locally: 0.2 %
Maximum daily site tonnage (kg/day): 0.000548 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 365
Emission or Release Factor: Air: 15 %
Emission or Release Factor: Water: 1 %
Emission or Release Factor: Soil: 0.5 %

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

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

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm²)

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

Organisational measures to prevent/limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Specific worker training
  - Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
  - Gloves APF 10 (Effectiveness of a measure): 90 %
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)
Other operational conditions affecting workers exposure

- Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Specific worker training

Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Gloves APF 10 (Effectiveness of a measure): 90 %

Wear suitable coveralls to prevent exposure to the skin.

Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
- Physical Form (at time of use): liquid

Frequency and duration of use

- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management

Dermal exposure: Both hands (960 cm2)

Other operational conditions affecting workers exposure

- Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented

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

Provide adequate information, instruction and training for operators.

In case of exposure:

Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.

Gloves APF 10 (Effectiveness of a measure): 90 %

Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing
MONOETHANOLAMINE (MEA)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.6 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.
Physical Form (at time of use): liquid

Amount used
Application rate: 0.3 - 3 L/min

Frequency and duration of use
Exposure duration: < 240 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 100 m³
Ventilation rate per hour: 1

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)

2.7 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.  
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Effectiveness (of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)

2.8 Contributing scenario controlling worker exposure for: CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 2%.  
Physical Form (at time of use): liquid

Frequency and duration of use
MONOETHANOLAMINE (MEA)

Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 2%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 10 (Effectiveness (of a measure): 90 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

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

#### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8f</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water</td>
<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
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<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

#### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
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</tr>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02743 mg/kg bw/day</td>
<td>0.02494</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02743 mg/kg bw/day</td>
<td>0.02494</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
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<tr>
<td>PROC11</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>2.1 mg/m³</td>
<td>0.63636</td>
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<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.05357 mg/kg bw/day</td>
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<tr>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01371 mg/kg bw/day</td>
<td>0.01247</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
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<td>----------------------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS100</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.00686 mg/kg bw/day</td>
<td>0.00623</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.00623</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC15</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
<td>0.00069 mg/kg bw/day</td>
<td>0.00062</td>
</tr>
</tbody>
</table>

CS100: Production or preparation or articles by tabletting, compression, extrusion or pelletisation
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC10: Roller application or brushing
PROC11: Non-industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
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

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Processing aid for paper, textile, leather

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

Environmental Release Categories: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

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

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amount used:
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 100%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 12.5 kg/day

Environment factors not influenced by risk management:
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure:
- Number of emission days per year: 80
- Emission or Release Factor: Air: 0.001%
- Emission or Release Factor: Water: 2%
- Emission or Release Factor: Soil: 0.01%

Technical conditions and measures / Organizational measures:
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Air: Waste gas treatment by thermal oxidation, Exhaust air scrubber
MONOETHANOLAMINE (MEA)

Water: Aerobic biological treatment
Soil: Sealing of all relevant soil surfaces in the facility is required, Sewage sludge incineration, No application of sewage sludge to soil

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%
Physical Form (at time of use): Liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%
Physical Form (at time of use): Liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year
**MONOETHANOLAMINE (MEA)**

**Human factors not influenced by risk management**
- Dermal exposure: Palms of both hands (480 cm²)

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

**Organisational measures to prevent / limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

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

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Amount used**
- Application rate: 0.3 - 3 L/min

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
- Room size: 300 m³
- Ventilation rate per hour: 3
  - Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

**Technical conditions and measures**
- Ensure fixed capturing hood is used. (Effectiveness of a measure): 90 %

**Organisational measures to prevent / limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation

Specific worker training
Wear suitable coveralls to prevent exposure to the skin.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable face shield.

2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent / limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid
Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.8 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 10%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

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

<table>
<thead>
<tr>
<th>Product characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.</td>
</tr>
<tr>
<td>Physical Form (at time of use): liquid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure duration: 1 - 4 h</td>
</tr>
<tr>
<td>Remarks: Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use: &lt;= 240 days/year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Human factors not influenced by risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal exposure: Both hands (960 cm²)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor / Indoor: Indoor</td>
</tr>
</tbody>
</table>

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.10 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

<table>
<thead>
<tr>
<th>Product characteristics</th>
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</thead>
<tbody>
<tr>
<td>Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.</td>
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<tr>
<td>Physical Form (at time of use): liquid</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure duration: &lt; 480 min</td>
</tr>
<tr>
<td>Remarks: Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use: &lt;= 240 days/year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Human factors not influenced by risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal exposure: Palms of both hands (480 cm²)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
</tr>
</thead>
</table>

125 / 245
Outdoor / Indoor: Indoor

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

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

#### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartiment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC4</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>0.00159 mg/L</td>
<td>0.01868</td>
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<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td></td>
<td>0.00810 mg/kg dry weight</td>
<td>0.01866</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>0.00016 mg/L</td>
<td>0.01868</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>0.00081 mg/kg dry weight</td>
<td>0.01866</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>0.01580 mg/L</td>
<td>0.00016</td>
<td></td>
</tr>
</tbody>
</table>

#### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.2545 mg/m³</td>
<td>0.07712</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00686 mg/kg bw/day</td>
<td>0.00623</td>
<td></td>
</tr>
<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC7</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>2.1 mg/m³</td>
<td>0.63636</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.10714 mg/kg bw/day</td>
<td>0.09740</td>
<td></td>
</tr>
</tbody>
</table>
### MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>PROC</th>
<th>ECETOC TRA</th>
<th>Exposure Scenario</th>
<th>Long Term Inhalation</th>
<th>Long Term Dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>2.545 mg/m³</td>
<td>0.77121</td>
<td>0.06234</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td>0.06234</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.06234</td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td>0.03429 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
<td>0.03117</td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>1.527 mg/m³</td>
<td>0.46273</td>
<td>0.13714 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.06857 mg/kg bw/day</td>
</tr>
</tbody>
</table>

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Industrial use in Detergents and cleaners

<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>Environmental Release Categories</td>
<td>ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)</td>
</tr>
<tr>
<td>Process categories</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>
</tbody>
</table>

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

<table>
<thead>
<tr>
<th>Amount used</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional use tonnage (tonnes/year):</td>
<td>1 ton(s)/year</td>
</tr>
<tr>
<td>Fraction of EU tonnage used in region:</td>
<td>100 %</td>
</tr>
<tr>
<td>Fraction of Regional tonnage used locally:</td>
<td>100 %</td>
</tr>
<tr>
<td>Maximum daily site tonnage (kg/day):</td>
<td>4,545 kg/day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environment factors not influenced by risk management</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilution Factor (River):</td>
<td>10</td>
</tr>
<tr>
<td>Dilution Factor (Coastal Areas):</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other given operational conditions affecting environmental exposure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of emission days per year:</td>
<td>220</td>
</tr>
<tr>
<td>Emission or Release Factor: Air:</td>
<td>0 %</td>
</tr>
<tr>
<td>Emission or Release Factor: Water:</td>
<td>100 %</td>
</tr>
<tr>
<td>Emission or Release Factor: Soil:</td>
<td>0 %</td>
</tr>
<tr>
<td>Remarks:</td>
<td>AISE SPERC 4.1.v2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical conditions and measures / Organizational measures</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Compartment:</td>
<td>Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant</td>
</tr>
<tr>
<td>Air:</td>
<td>Waste gas treatment by thermal oxidation, Exhaust air scrubber</td>
</tr>
<tr>
<td>Water:</td>
<td>Aerobic biological treatment</td>
</tr>
<tr>
<td>Soil:</td>
<td>Sealing of all relevant soil surfaces in the facility is required, Sewage sludge incineration, No application of sewage sludge to soil</td>
</tr>
</tbody>
</table>
Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)
Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

 Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 10%. |
| Physical Form (at time of use) | liquid |

Frequency and duration of use
| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
| Frequency of use | <= 240 days/year |

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
| Concentration of the Substance in | Covers percentage substance in the product up to 10%. |
MONOETHANOLAMINE (MEA)

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Environment</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartement</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC4</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>0.00910 mg/L</td>
<td>0.10704</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td></td>
<td>0.04640 mg/kg dry weight</td>
<td>0.10692</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>0.00991 mg/L</td>
<td>0.10704</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>0.00464 mg/kg dry weight</td>
<td>0.10692</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>0.09091 mg/L</td>
<td>0.00091</td>
<td></td>
</tr>
</tbody>
</table>

Workers

<table>
<thead>
<tr>
<th>Contributing</th>
<th>Exposure Assessment</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Professional use in Detergents and cleaners

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

Environmental Release Categories: ERC8d: Wide dispersive outdoor use of processing aids in open systems

Process categories:
- 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
- PROC10: Roller application or brushing
- PROC11: Non-industrial spraying
- PROC13: Treatment of articles by dipping and pouring
- PROC19: Manual activities involving hand contact

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

Amount used
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 10 %
- Fraction of Regional tonnage used locally: 0.075 %
- Maximum daily site tonnage (kg/day): 0.055 kg/day

Environment factors not influenced by risk management
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 365
- Emission or Release Factor: Air: 0 %
- Emission or Release Factor: Water: 100 %
- Emission or Release Factor: Soil: 0 %
- Remarks: AISE SPERC 8a.1.a.v2

Technical conditions and measures / Organizational measures
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Water: Aerobic biological treatment

Conditions and measures related to municipal sewage treatment plant
- Type of Sewage Treatment Plant: Municipal sewage treatment plant
2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palm of one hand (240 cm²)

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

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
- Provide adequate information, instruction and training for operators.
- In case of exposure:
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - Use suitable eye protection.

(Effectiveness (of a measure): 95 %)

2.3 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: 15 - 60 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

*Effectiveness (of a measure): 95 %*

Wear suitable coveralls to prevent exposure to the skin.

Use suitable eye protection.

---

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

**Product characteristics**

| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 10%.
| Physical Form (at time of use) | liquid |

**Frequency and duration of use**

- **Exposure duration**: 15 - 60 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**

- **Dermal exposure**: Both hands (960 cm2)

**Other operational conditions affecting workers exposure**

- **Outdoor / Indoor**: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

*Effectiveness (of a measure): 95 %*

Wear suitable coveralls to prevent exposure to the skin.

Wear suitable face shield.

---

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

**Activity**: Option 1, Small scale

**Product characteristics**

| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 10%.
| Physical Form (at time of use) | liquid |

**Amount used**

- **Application rate**: 0.3 - 3 L/min

**Frequency and duration of use**

- **Exposure time**: < 60 min
**MONOETHANOLAMINE (MEA)**

**Frequency of use**: minutes/day
**Remarks**: Inhalation, Dermal
**Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- **Outdoor / Indoor**: Indoor
- **Room size**: 100 m³
- **Ventilation rate per hour**: 1
  - Spraying with no or low compressed air use. Ensure that direction of application is only horizontal or downward.

**Organisational measures to prevent /limit releases, dispersion and exposure**
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- **Specific worker training**
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - (Effectiveness of a measure): 95 %
  - Wear suitable coveralls to prevent exposure to the skin.
  - Wear suitable face shield.

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

<table>
<thead>
<tr>
<th><strong>Activity</strong></th>
<th>Option 2, Small scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Concentration of the Substance in Mixture/Article</td>
<td>Covers percentage substance in the product up to 10%.</td>
</tr>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
</tr>
<tr>
<td><strong>Amount used</strong></td>
<td></td>
</tr>
<tr>
<td>Application rate</td>
<td>0.3 - 3 L/min</td>
</tr>
<tr>
<td><strong>Frequency and duration of use</strong></td>
<td></td>
</tr>
<tr>
<td>Exposure duration</td>
<td>&lt; 360 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>&lt;= 240 days/year</td>
</tr>
</tbody>
</table>

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- **Outdoor / Indoor**: Indoor
- **Room size**: 100 m³
  - Spraying with no or low compressed air use. Ensure that direction of application is only horizontal or downward.

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

2.7 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concentration of the Substance in Mixture/Article</strong></td>
<td>Covers percentage substance in the product up to 10%.</td>
</tr>
<tr>
<td><strong>Physical Form (at time of use)</strong></td>
<td>liquid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency and duration of use</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exposure duration</strong></td>
<td>&lt; 480 min</td>
</tr>
<tr>
<td><strong>Remarks</strong></td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td><strong>Frequency of use</strong></td>
<td>&lt;= 240 days/year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Human factors not influenced by risk management</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dermal exposure</strong></td>
<td>Palms of both hands (480 cm²)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other operational conditions affecting workers exposure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outdoor / Indoor</strong></td>
<td>Indoor</td>
</tr>
</tbody>
</table>

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

2.9 Contributing scenario controlling worker exposure for: PROC19: Manual activities involving hand contact

<table>
<thead>
<tr>
<th>Product characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concentration of the Substance in Mixture/Article</strong></td>
<td>Covers percentage substance in the product up to 10%.</td>
</tr>
<tr>
<td><strong>Physical Form (at time of use)</strong></td>
<td>liquid</td>
</tr>
</tbody>
</table>
**Monoethanolamine (MEA)**

**Frequency and duration of use**
- Exposure duration: < 240 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands and main part of arms (1980 cm²)

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

**Organisational measures to prevent/limit releases, dispersion and exposure**
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Specific worker training
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
  - Wear suitable coveralls to prevent exposure to the skin.
  - Wear respiratory protection. (Effectiveness (of a measure): 90 %)
  - Wear suitable face shield.

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

**Environment**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8d</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>0.00036 mg/L</td>
<td>0.00418</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>0.00181 mg/kg dry weight</td>
<td>0.00418</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>0.00418</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.00018 mg/kg dry weight</td>
<td>0.00418</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>0.00013 mg/kg dry weight</td>
<td>0.00359</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>0.00348 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Workers**

<table>
<thead>
<tr>
<th>Contributing Assessment</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of</th>
<th>RCR</th>
</tr>
</thead>
</table>
### Scenario Method Exposure

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Method</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation 0.7635 mg/m³ 0.23136</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.00343 mg/kg bw/day 0.00312</td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation 1.273 mg/m³ 0.38561</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.06857 mg/kg bw/day 0.06234</td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation 1.273 mg/m³ 0.38561</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.13714 mg/kg bw/day 0.12468</td>
</tr>
<tr>
<td>PROC11</td>
<td>ART</td>
<td>Long term inhalation 1.8 mg/m³ 0.54546</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.06696 mg/kg bw/day 0.06088</td>
</tr>
<tr>
<td>PROC11</td>
<td>ART</td>
<td>Long term inhalation 1.1 mg/m³ 0.33333</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.40179 mg/kg bw/day 0.36526</td>
</tr>
<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation 2.545 mg/m³ 0.77121</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.06857 mg/kg bw/day 0.06234</td>
</tr>
<tr>
<td>PROC19</td>
<td>ECETOC TRA</td>
<td>Long term inhalation 0.38175 mg/m³ 0.11568</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal 0.70714 mg/kg bw/day 0.64286</td>
</tr>
</tbody>
</table>

**ERC8d:** Wide dispersive outdoor use of processing aids in open systems  
**PROC10:** Roller application or brushing  
**PROC11:** Non-industrial spraying  
**PROC13:** Treatment of articles by dipping and pouring  
**PROC19:** Manual activities involving hand contact  
**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

---

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

For further information, please also consult our Internet site: Downstream Users  
1. Short title of Exposure Scenario: Use of detergents and cleaners

Main User Groups : SU 21: Consumer uses: Private households (= general public = consumers)
Environmental Release Categories : ERC8d: Wide dispersive outdoor use of processing aids in open systems
Chemical product category : PC35: Washing and cleaning products

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

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 10 %
Fraction of Regional tonnage used locally: 0.075 %
Maximum daily site tonnage (kg/day): 0.027 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 365
Emission or Release Factor: Air: 0 %
Emission or Release Factor: Water: 100 %
Emission or Release Factor: Soil: 0 %
Remarks: AISE SPERC 8a.1.a.v2

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC35: Washing and cleaning products

Activity : Detergent, Loading/unloading operations
Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Amount used
Amount used: 500 g
Remarks: Inhalation
Amount used: 0.010 g
MONOETHANOLAMINE (MEA)

Remarks : Dermal
Amount used : 0.010 g
Remarks : oral

Frequency and duration of use
Application duration : 0.3 min
Exposure duration : 0.75 min
Remarks : Inhalation, Dermal, Oral exposure

Human factors not influenced by risk management
Dermal exposure : 215 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor : Indoor
Room size : 1 m³
Temperature : 20 °C
Ventilation rate per hour : 2
Remarks : L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)
Consumer Measures : Do not touch eyes when using this product.

2.3 Contributing scenario controlling consumer exposure for: PC35: Washing and cleaning products

Activity : Detergent, Application

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 0.05%
Physical Form (at time of use) : liquid

Amount used
Amount used : 19 g
Remarks : Inhalation
Amount used : 19 g
Remarks : Dermal
Amount used : 0.5 g
Remarks : oral

Frequency and duration of use
Application duration : 10 min
Exposure duration : 10 min
Remarks : Inhalation, Dermal, Oral exposure

Other given operational conditions affecting consumers exposure
Outdoor / Indoor : Indoor
Room size : 10 m³
Temperature : 20 °C
Ventilation rate per hour : 2
Remarks : L/h
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures: Do not touch eyes when using this product.

2.4 Contributing scenario controlling consumer exposure for: PC35: Washing and cleaning products

Activity: All purpose cleaners, Mixing and loading
**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Amount used**
- Amount used: 500 g

**Frequency and duration of use**
- Application duration: 0.3 min
- Exposure duration: 0.75 min
- Remarks: Inhalation, Dermal, Oral exposure

**Human factors not influenced by risk management**
- Dermal exposure: 215 cm²

**Other given operational conditions affecting consumers exposure**
- Outdoor / Indoor: Indoor
- Room size: 1 m³
- Temperature: 20 °C
- Ventilation rate per hour: 0.5
- Remarks: L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures: Do not touch eyes when using this product.

2.5 Contributing scenario controlling consumer exposure for: PC35: Washing and cleaning products

Activity: All purpose cleaners, Application

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 0.06%
- Physical Form (at time of use): liquid

**Amount used**
- Amount used: 400 g
- Remarks: Inhalation
- Amount used: 19 g
- Remarks: Dermal
- Amount used: 0.010 g
- Remarks: oral
Frequency and duration of use
Application duration : 20 min
Exposure duration : 240 min
Remarks : Inhalation, Dermal, Oral exposure

Human factors not influenced by risk management
Dermal exposure : 1900 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor : Indoor
Room size : 58 m³
Temperature : 20 °C
Ventilation rate per hour : 0.5
Remarks : L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)
Consumer Measures : Do not touch eyes when using this product.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8d</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>0.00018 mg/L</td>
<td>0.0021</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>0.00091 mg/kg dry weight</td>
<td>0.0021</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>0.0021</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.0021</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00204</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>0.00171 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC35</td>
<td>&quot;Conexpo&quot;</td>
<td>Detergent, Loading/unloading operations</td>
<td>&lt; 0.0001 mg/m³</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Conexpo&quot;</td>
<td>Long term inhalation</td>
<td>0.00833 mg/kg bw/day</td>
<td>0.03472</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Conexpo&quot;</td>
<td>Long term dermal</td>
<td>0.00833 mg/kg bw/day</td>
<td>0.00222</td>
<td></td>
</tr>
</tbody>
</table>


### PC35: Washing and cleaning products

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Long-term Inhalation</th>
<th>Long-term Dermal</th>
<th>Long-term Oral</th>
<th>Oral mg/kg bw/day</th>
<th>Oral mg/kg bw/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Conexpo&quot; All purpose cleaners, Mixing and loading</td>
<td>&lt; 0.0001 mg/m³</td>
<td>0.15833 mg/kg bw/day</td>
<td>0.00417 mg/kg bw/day</td>
<td>0.00833 mg/kg bw/day</td>
<td>0.00833 mg/kg bw/day</td>
</tr>
<tr>
<td>&quot;Conexpo&quot; All purpose cleaners, Mixing and loading</td>
<td>&lt; 0.0001 mg/m³</td>
<td>0.00833 mg/kg bw/day</td>
<td>0.00833 mg/kg bw/day</td>
<td>0.03043 mg/kg bw/day</td>
<td>0.03043 mg/kg bw/day</td>
</tr>
<tr>
<td>&quot;Conexpo&quot; All purpose cleaners, Mixing and loading</td>
<td>&lt; 0.0001 mg/m³</td>
<td>0.1995 mg/kg bw/day</td>
<td>0.01522 mg/kg bw/day</td>
<td>0.01522 mg/kg bw/day</td>
<td>0.01522 mg/kg bw/day</td>
</tr>
<tr>
<td>&quot;Conexpo&quot; All purpose cleaners, Mixing and loading</td>
<td>&lt; 0.0001 mg/m³</td>
<td>0.00011 mg/kg bw/day</td>
<td>&lt; 0.0001 mg/kg bw/day</td>
<td>0.00417 mg/kg bw/day</td>
<td>0.00417 mg/kg bw/day</td>
</tr>
</tbody>
</table>

**ERC8d**: Wide dispersive outdoor use of processing aids in open systems

**PC35**: Washing and cleaning products

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Use in Personal care products

Main User Groups : SU 21: Consumer uses: Private households (= general public = consumers)
Environmental Release Categories : ERC8a: Wide dispersive indoor use of processing aids in open systems
Chemical product category : PC39: Cosmetics, personal care products

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

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 10 %
Fraction of Regional tonnage used locally: 0.075 %
Maximum daily site tonnage (kg/day): 0.098 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 365
Emission or Release Factor: Air: 0 %
Emission or Release Factor: Water: 100 %
Emission or Release Factor: Soil: 0 %
Remarks: COLIPA SPERC 8a.1.a.v1

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC39: Cosmetics, personal care products

Activity : Use in Personal care products
### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartments</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8a</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>0.00063 mg/L</td>
<td>0.00738</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>0.00320 mg/kg dry weight</td>
<td>0.00737</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>0.00738</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.00032 mg/kg dry weight</td>
<td>0.00737</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Soil</td>
<td>0.00022 mg/kg dry weight</td>
<td>0.00598</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>0.006195 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

ERC8a: Wide dispersive indoor use of processing aids in open systems

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Wood protection formulations

<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>Environmental Release Categories</td>
<td>ERC5: Industrial use resulting in inclusion into or onto a matrix</td>
</tr>
<tr>
<td>Process categories</td>
<td>PROC1: Use in closed process, no likelihood of exposure</td>
</tr>
<tr>
<td></td>
<td>PROC3: Use in closed batch process (synthesis or formulation)</td>
</tr>
<tr>
<td></td>
<td>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</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>PROC13: Treatment of articles by dipping and pouring</td>
</tr>
<tr>
<td></td>
<td>PROC15: Use as laboratory reagent</td>
</tr>
</tbody>
</table>

2.1 Contributing scenario controlling environmental exposure for: ERC5: Industrial use resulting in inclusion into or onto a matrix

**Amount used**

<table>
<thead>
<tr>
<th>Regional use tonnage (tonnes/year)</th>
<th>1 ton(s)/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraction of EU tonnage used in region</td>
<td>100 %</td>
</tr>
<tr>
<td>Fraction of Regional tonnage used locally</td>
<td>100 %</td>
</tr>
<tr>
<td>Maximum daily site tonnage (kg/day)</td>
<td>10 kg/day</td>
</tr>
</tbody>
</table>

**Environment factors not influenced by risk management**

<table>
<thead>
<tr>
<th>Dilution Factor (River)</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dilution Factor (Coastal Areas)</td>
<td>100</td>
</tr>
</tbody>
</table>

**Other given operational conditions affecting environmental exposure**

<table>
<thead>
<tr>
<th>Number of emission days per year</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission or Release Factor: Air</td>
<td>0 %</td>
</tr>
<tr>
<td>Emission or Release Factor: Water</td>
<td>0.06 %</td>
</tr>
<tr>
<td>Emission or Release Factor: Soil</td>
<td>0.01 %</td>
</tr>
</tbody>
</table>

**Technical conditions and measures / Organizational measures**

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Waste gas treatment by thermal oxidation, Exhaust air scrubber</td>
</tr>
</tbody>
</table>
Water: Aerobic biological treatment
Soil: Sewage sludge incineration. No application of sewage sludge to soil. Sealing of all relevant soil surfaces in the facility is required

**Conditions and measures related to municipal sewage treatment plant**
- **Type of Sewage Treatment Plant**: Municipal sewage treatment plant
- **Percentage removed from waste water**: 99%

**2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure**

**Product characteristics**
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 5%.
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Palm of one hand (240 cm²)

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

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented

**Conditions and measures related to personal protection, hygiene and health evaluation**
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95%
Use suitable eye protection.

**2.3 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)**

**Product characteristics**
- **Concentration of the Substance in Mixture/Article**: Covers the percentage of the substance in the product up to 5%.
- **Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
MONOETHANOLAMINE (MEA)

Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.

In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%.
| Physical Form (at time of use) | Liquid

Frequency and duration of use

| Exposure duration | < 480 min
| Remarks | Inhalation, Dermal
| Frequency of use | <= 240 days/year

Human factors not influenced by risk management

| Dermal exposure | Both hands (960 cm²)

Other operational conditions affecting workers exposure

| Outdoor / Indoor | Indoor

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%.
| Physical Form (at time of use) | Liquid

Frequency and duration of use

| Exposure duration | < 480 min
| Remarks | Inhalation, Dermal
| Frequency of use | <= 240 days/year

Human factors not influenced by risk management

| Dermal exposure | Both hands (960 cm²)
Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
- Local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
2.8 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Palms of both hands (480 cm²)

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

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.9 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Palm of one hand (240 cm²)

**Other operational conditions affecting workers exposure**
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Environment</th>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
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<tbody>
<tr>
<td>ERC5</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
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<td>Fresh water sediment</td>
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<td>0.00010 mg/kg dry weight</td>
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<td>Marine water</td>
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<td>&lt; 0.0001 mg/L</td>
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<td>Marine sediment</td>
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<td>0.00012 mg/L</td>
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<tr>
<th>Workers</th>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
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<td>0.00127 mg/m³</td>
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<td>Long term dermal</td>
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<td>&lt; 0.0001 mg/kg bw/day</td>
<td>&lt; 0.0001</td>
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<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
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<td>0.38175 mg/m³</td>
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<td>Long term dermal</td>
<td></td>
<td>0.00171 mg/kg bw/day</td>
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### MONOETHANOLAMINE (MEA)

#### PROC5

<table>
<thead>
<tr>
<th>PROC</th>
<th>ECETOC TRA</th>
<th>Long term inhalation</th>
<th>0.63625 mg/m³</th>
<th>0.19280</th>
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</table>

<table>
<thead>
<tr>
<th>ECETOC TRA</th>
<th>Long term dermal</th>
<th>0.03429 mg/kg bw/day</th>
<th>0.03117</th>
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<tr>
<th>PROC8a</th>
<th>ECETOC TRA</th>
<th>Long term inhalation</th>
<th>1.273 mg/m³</th>
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<table>
<thead>
<tr>
<th>ECETOC TRA</th>
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<th>0.03429 mg/kg bw/day</th>
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<th>0.03429 mg/kg bw/day</th>
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<th>ECETOC TRA</th>
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<tr>
<th>ECETOC TRA</th>
<th>Long term dermal</th>
<th>0.01714 mg/kg bw/day</th>
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<th>PROC13</th>
<th>ECETOC TRA</th>
<th>Long term inhalation</th>
<th>1.273 mg/m³</th>
<th>0.38561</th>
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</table>

<table>
<thead>
<tr>
<th>ECETOC TRA</th>
<th>Long term dermal</th>
<th>0.03429 mg/kg bw/day</th>
<th>0.03117</th>
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<tr>
<th>PROC15</th>
<th>ECETOC TRA</th>
<th>Long term inhalation</th>
<th>0.63625 mg/m³</th>
<th>0.19280</th>
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</table>

<table>
<thead>
<tr>
<th>ECETOC TRA</th>
<th>Long term dermal</th>
<th>0.00086 mg/kg bw/day</th>
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</table>

ERC5: Industrial use resulting in inclusion into or onto a matrix
PROC1: Use in closed process, no likelihood of exposure
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
PROC5: Use in closed batch process (synthesis or formulation)
PROC3: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
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)

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Wood protection formulations

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

Environmental Release Categories: ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Process categories:
- PROC1: Use in closed process, no likelihood of exposure
- PROC3: Use in 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 preparations and articles (multistage and/or significant contact)
- PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC10: Roller application or brushing
- PROC11: Non-industrial spraying
- PROC13: Treatment of articles by dipping and pouring

2.1 Contributing scenario controlling environmental exposure for: ERC8f, ERC8c: Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use resulting in inclusion into or onto a matrix

Amount used:
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 10% 
- Fraction of Regional tonnage used locally: 0.2%
- Maximum daily site tonnage (kg/day): 0.000548 kg/day

Environment factors not influenced by risk management:
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure:
- Number of emission days per year: 365
- Emission or Release Factor: Air: 15 %
- Emission or Release Factor: Water: 1 %
- Emission or Release Factor: Soil: 0.5 %

Conditions and measures related to municipal sewage treatment plant:
- Type of Sewage Treatment Plant: Municipal sewage treatment plant
2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Palm of one hand (240 cm²)

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

**Organisational measures to prevent/limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented

**Conditions and measures related to personal protection, hygiene and health evaluation**
Provide adequate information, instruction and training for operators.
In case of exposure:
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  (Effectiveness of a measure): 95 %
- Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Palm of one hand (240 cm²)

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

**Organisational measures to prevent/limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation

Provide adequate information, instruction and training for operators.

In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
MONOETHANOLAMINE (MEA)

Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor/Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 80 %)

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

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

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: 1 - 4 h
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm2)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.8 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Amount used
- Application rate: 0.3 - 3 L/min

Frequency and duration of use
- Exposure time: < 90 min
- Frequency of use: minutes/day
- Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 100 m³
Ventilation rate per hour: 1
Spraying with high compressed air use. Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness of a measure): 95 %
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness of a measure): 95 %
Wear suitable face shield.

2.9 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
2.10 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

Activity: Manual process

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Amount used
- Application rate: 0.3 - 3 L/min

Frequency and duration of use
- Exposure time: < 90 min
- Frequency of use: minutes/day
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
- Outdoor / Indoor: Indoor
- Room size: 100 m³
- Temperature: 20 °C
- Ventilation rate per hour: 1

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)
Wear suitable face shield.

2.11 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to
**Mixture/Article**: 5%

**Physical Form (at time of use)**: liquid

**Frequency and duration of use**
- **Exposure duration**: < 480 min
- **Remarks**: Inhalation, Dermal
- **Frequency of use**: <= 240 days/year

**Human factors not influenced by risk management**
- **Dermal exposure**: Palms of both hands (480 cm²)

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

**Organisational measures to prevent/limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- **Specific worker training**: Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - **Effectiveness (of a measure)**: 95%
- Wear suitable overalls to prevent exposure to the skin.
- Wear suitable face shield.

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

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<td>EUSES</td>
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<td></td>
<td>&lt; 0.0001 mg/L</td>
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<tr>
<td></td>
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<td>Long term dermal</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
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<td>0.00171 mg/kg bw/day</td>
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<td>ECETOC TRA</td>
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<td>0.01714 mg/kg bw/day</td>
<td>0.01558</td>
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<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
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<td>1.273 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
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<tr>
<td>PROC11</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>2 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.05022 mg/kg bw/day</td>
<td>0.04566</td>
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<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
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<td>Long term inhalation</td>
<td>2 mg/m³</td>
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<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC1: Use in closed process, no likelihood of exposure
PROC10: Roller application or brushing
PROC11: Non-industrial spraying
PROC13: Treatment of articles by dipping and pouring
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 preparations and articles (multistage and/ or significant contact)
PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Wood protection formulations

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

Environmental Release Categories: ERC8f, ERC8c: Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use resulting in inclusion into or onto a matrix

Chemical product category: PC8: Biocidal products

2.1 Contributing scenario controlling environmental exposure for: ERC8f, ERC8c: Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use resulting in inclusion into or onto a matrix

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 10 %
Fraction of Regional tonnage used locally: 0.2 %
Maximum daily site tonnage (kg/day): 0.000548 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 365
Emission or Release Factor: Air: 15 %
Emission or Release Factor: Water: 1 %
Emission or Release Factor: Soil: 0.5 %
Remarks: ESVOC SpERC 8.16.v1

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC8: Biocidal products

Amount used
Amount used: 1000 g
Remarks: Inhalation

Frequency and duration of use
Frequency of use: 1 event/day
Remarks: Inhalation, Dermal
Exposure duration: 132 min
### MONOETHANOLAMINE (MEA)

**Remarks**
- Application duration: 120 min
- Release duration: 120 min

**Human factors not influenced by risk management**
- Dermal exposure: 860 cm²

**Other given operational conditions affecting consumers exposure**
- Outdoor / Indoor: Indoor
- Room size: 900 m³
- Temperature: 20 °C
- Ventilation rate per hour: 2.5

**Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)**
- Consumer Measures: Do not touch eyes when using this product.

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

#### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8f</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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<tr>
<td></td>
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<td>Fresh water sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
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<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
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<td></td>
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<td>Marine sediment</td>
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<tr>
<td></td>
<td></td>
<td>Soil</td>
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<td>Sewage treatment plant</td>
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<td>&lt; 0.0001 mg/L</td>
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#### Consumers

<table>
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<tr>
<th>Contributing Scenario</th>
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<th>Level of Exposure</th>
<th>RCR</th>
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<tbody>
<tr>
<td>PC8</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
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<td></td>
<td>&quot;Consexpo&quot;</td>
<td>Long term</td>
<td>0.180 mg/kg</td>
<td>0.750</td>
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</table>
4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Wood protection formulations

Environmental Release Categories: ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release

Article categories: AC11: Wood articles

3. Exposure estimation and reference to its source

Environment

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<tr>
<td>ERC10a</td>
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<td>Fresh water</td>
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<tr>
<td></td>
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<td>&lt; 0.0001 mg/kg dry weight</td>
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<td>Sewage treatment plant</td>
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Consumers

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<th>Specific conditions</th>
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<th>Level of Exposure</th>
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<tr>
<td>ERC10a</td>
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ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario
1. Short title of Exposure Scenario: Industrial application of coatings and inks

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

Environmental Release Categories: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Process categories:
- 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 preparations and articles (multistage and/or significant contact)
- 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
- PROC10: Roller application or brushing
- PROC13: Treatment of articles by dipping and pouring
- PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amount used
Regional use tonnage: 1 ton(s)/year
 Fraction of EU tonnage used in region: 100 %
 Fraction of Regional tonnage used locally: 100 %
 Maximum daily site tonnage (kg/day): 5 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 225
Emission or Release Factor: Air: 0.8 %
Emission or Release Factor: Water: 2 %
Emission or Release Factor: Soil: 0 %
Remarks: CEPE SpERC 4
Technical conditions and measures / Organizational measures

Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
Air: Waste gas treatment by thermal oxidation, Exhaust air scrubber
Water: Aerobic biological treatment
Soil: No application of sewage sludge to soil, Sewage sludge incineration, Sealing of all relevant soil surfaces in the facility is required

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant
Percentage removed from waste water: 99 %

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
MONOETHANOLAMINE (MEA)

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year
Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

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

Activity: Option 1, Spraying (automatic/robotic)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Amount used
Application rate: 0.3 - 3 L/min

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 300 m³
Temperature: 20 °C
Ventilation rate per hour: 3

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness (of a measure): 90 %)
Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear suitable coveralls to prevent exposure to the skin.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95%
Wear suitable face shield.

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

Activity
Option 2, Manual spray application (liquid products)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Amount used
Application rate: 0.3 - 3 L/min

Frequency and duration of use
Exposure duration: < 360 min
Frequency of use: minutes/day
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands plus forearms (1500 cm2).

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 300 m3
Temperature: 20 °C
Ventilation rate per hour: 3
Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 95 %)
Wear suitable face shield.

2.9 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

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

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.10 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year
Human factors not influenced by risk management
   Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
   Provide adequate information, instruction and training for operators.
   In case of exposure:
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   Gloves APF 20 (Effectiveness of a measure): 95%
   Use suitable eye protection.

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

Product characteristics
   Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
   Physical Form (at time of use) : liquid

Frequency and duration of use
   Exposure duration : < 480 min
   Remarks : Inhalation, Dermal
   Frequency of use : <= 240 days/year

Human factors not influenced by risk management
   Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented
   Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
   Specific worker training
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   Gloves APF 20 (Effectiveness of a measure): 95%
   Wear suitable coversalls to prevent exposure to the skin.
   Wear suitable face shield.
2.12 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

**Product characteristics**

| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%. |
| Physical Form (at time of use) | liquid |

**Frequency and duration of use**

| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
| Frequency of use | <= 240 days/year |

**Human factors not influenced by risk management**

Dermal exposure: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**

Outdoor / Indoor: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented

Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Specific worker training

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.

Gloves APF 20 (Effectiveness (of a measure): 95 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear suitable face shield.

2.13 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

**Product characteristics**

| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%. |
| Physical Form (at time of use) | liquid |

**Frequency and duration of use**

| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
| Frequency of use | <= 240 days/year |

**Human factors not influenced by risk management**

Dermal exposure: Palm of one hand (240 cm²)

**Other operational conditions affecting workers exposure**

Outdoor / Indoor: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

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

Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

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

**Environment**

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<tr>
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<tr>
<td>ERC4</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
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<td>Fresh water sediment</td>
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<td>0.00166 mg/kg dry weight</td>
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<td>Sewage treatment plant</td>
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**Workers**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
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<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.00127 mg/m³</td>
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<td>ECETOC TRA</td>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00343 mg/kg bw/day</td>
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<tr>
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<td>ECETOC TRA</td>
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<td>Long term</td>
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<td>0.03117 mg/kg bw/day</td>
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<td>Art</td>
<td>Spraying (automatic/robotic)</td>
<td>2.1 mg/m³</td>
<td>0.63636 mg/kg bw/day</td>
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<td>ECETOC TRA</td>
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<td>0.10714 mg/kg bw/day</td>
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<td>0.03117 mg/kg bw/day</td>
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<td>Art</td>
<td>Manual spray application (liquid products)</td>
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<tr>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117 mg/kg bw/day</td>
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<td>PROC8b</td>
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<tr>
<td>ECETOC TRA</td>
<td>Long term</td>
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<td>0.03117 mg/kg bw/day</td>
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<tr>
<td>PROC10</td>
<td>Long term</td>
<td>1.273 mg/m³</td>
<td>0.38561 mg/kg bw/day</td>
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<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.06857 mg/kg bw/day</td>
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<td>PROC13</td>
<td>Long term</td>
<td>1.273 mg/m³</td>
<td>0.38561 mg/kg bw/day</td>
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<tr>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117 mg/kg bw/day</td>
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<tr>
<td>PROC15</td>
<td>Long term</td>
<td>0.63625 mg/m³</td>
<td>0.19280 mg/kg bw/day</td>
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<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.00086 mg/kg bw/day</td>
<td>0.00078 mg/kg bw/day</td>
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</table>

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
PROC1: Use in closed process, no likelihood of exposure
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
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 preparations and articles (multistage and/or significant contact)
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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario
For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Professional application of coatings and inks

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

Environmental Release Categories: ERC8d: Wide dispersive outdoor use of processing aids in open systems

Process categories:
- 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 preparations and articles (multistage and/or significant contact)
- 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
- PROC15: Use as laboratory reagent
- PROC19: Manual activities involving hand contact

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

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 10%
Fraction of Regional tonnage used locally: 100%
Maximum daily site tonnage (kg/day): 0.444444 kg/day

Environment factors not influenced by risk management
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
- Number of emission days per year: 225
- Emission or Release Factor: Air: 98%
Emission or Release Factor: Water : 2 %
Emission or Release Factor: Soil : 0 %
Remarks : CEPE SPERC 8d.3a.v.1

Technical conditions and measures / Organizational measures
Compartment : Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year
Remarks : Inhalation, Dermal

Human factors not influenced by risk management
Dermal exposure : Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
MONOETHANOLAMINE (MEA)

Remarks
Frequency of use
Human factors not influenced by risk management
Dermal exposure
Other operational conditions affecting workers exposure
Outdoor / Indoor
Organisational measures to prevent /limit releases, dispersion and exposure

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article
Physical Form (at time of use)

Frequency and duration of use
Exposure duration
Remarks
Frequency of use

Human factors not influenced by risk management
Dermal exposure

Other operational conditions affecting workers exposure
Outdoor / Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.
2.5 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm2)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm2)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid
Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands (960 cm²)

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

**Organisational measures to prevent /limit releases, dispersion and exposure**
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Specific worker training
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - (Effectiveness (of a measure): 95 %)
  - Wear suitable coveralls to prevent exposure to the skin.
  - Wear suitable face shield.

2.11 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

**Activity**
- Manual process

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Amount used**
- Application rate: 0.3 - 3 L/min

**Frequency and duration of use**
- Exposure time: < 90 min
- Frequency of use: minutes/day
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
Dermal exposure : Both hands plus forearms (1500 cm²).

Other operational conditions affecting workers exposure
- Outdoor / Indoor : Indoor
- Room size : 100 m³
- Temperature : 20 °C
- Ventilation rate per hour : 1
  - Spraying with high compressed air use, Ensure that direction of application is only horizontal or downward.

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  (Effectiveness of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Wear respiratory protection. (Effectiveness of a measure): 95 %
- Wear suitable face shield.

2.12 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
- Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use) : liquid

Frequency and duration of use
- Exposure duration : < 480 min
- Remarks : Inhalation, Dermal
- Frequency of use : <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure : Palms of both hands (480 cm²)

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

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  (Effectiveness of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

### 2.13 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Palm of one hand (240 cm²)

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

**Organisational measures to prevent /limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

### 2.14 Contributing scenario controlling worker exposure for: PROC19: Manual activities involving hand contact

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: 15 - 60 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands and main part of arms (1980 cm²)

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

3. Exposure estimation and reference to its source

Environment

<table>
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<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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<tbody>
<tr>
<td>ERC8d</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
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<td>Fresh water sediment</td>
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<td>Marine water</td>
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<td>Marine sediment</td>
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<td>Sewage treatment plant</td>
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<td>&lt; 0.0001</td>
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</tbody>
</table>

Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.00127 mg/m³</td>
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<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
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<td>ECETOC TRA</td>
<td>Long term inhalation</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00343 mg/kg bw/day</td>
<td>0.00312</td>
<td></td>
</tr>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
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<td>ECETOC TRA</td>
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<td>Procedure</td>
<td>Source</td>
<td>Exposure Route</td>
<td>Concentration</td>
<td>Dermal Absorption</td>
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<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01714 mg/kg bw/day</td>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
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<td>PROC8a</td>
<td>ECETOC TRA</td>
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<td>2.227 mg/m³</td>
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<td>ECETOC TRA</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
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<td>PROC9</td>
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<td>ECETOC TRA</td>
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<td>ECETOC TRA</td>
<td>Long term dermal</td>
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<td>PROC11</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>2 mg/m³</td>
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<td>ECETOC TRA</td>
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<tr>
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<td>ECETOC TRA</td>
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<td>ECETOC TRA</td>
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<td>0.35357 mg/kg bw/day</td>
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</tbody>
</table>

ERC8d: Wide dispersive outdoor use of processing aids in open systems
PROC1: Use in closed process, no likelihood of exposure
PROC10: Roller application or brushing
PROC11: Non-industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
PROC19: Manual activities involving hand contact
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 preparations and articles (multistage and/or significant contact)
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)

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Consumer application of coatings

Main User Groups : SU 21: Consumer uses: Private households (= general public = consumers)
Environmental Release Categories : ERC8d: Wide dispersive outdoor use of processing aids in open systems
Chemical product category : PC9a: Coatings and paints, thinners, paint removers
PC18: Ink and toners

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

Amount used
Regional use tonnage : 1 ton(s)/year (tonnes/year):
Fraction of EU tonnage used in region: : 10 %
Fraction of Regional tonnage used locally: : 100 %
Maximum daily site tonnage (kg/day): : 0.273973 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): : 10
Dilution Factor (Coastal Areas): : 100

Other given operational conditions affecting environmental exposure
Number of emission days per year : 365
Emission or Release Factor: Air : 98.5 %
Emission or Release Factor: Water : 1 %
Emission or Release Factor: Soil : 0.5 %
Remarks : CEPE SPERC 8d.1a.v.1

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers

Activity : Application
Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 0.4%.

Amount used
Amount used : 1000 g
Remarks : Inhalation
Amount used : 0.5 g
Remarks: Dermal

Frequency and duration of use
Frequency of use: 1 event/day
Remarks: Inhalation, Dermal
Exposure duration: 60 min
Remarks: Inhalation
Application duration: 60 min
Remarks: Inhalation

Human factors not influenced by risk management
Dermal exposure: 430 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor: Indoor
Room size: 20 m³
Temperature: 20 °C
Ventilation rate per hour: 2.5
Remarks: L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)
Consumer Measures: Do not touch eyes when using this product.

2.3 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers

Activity: Application
Product characteristics
Concentration of the Substance in Mixture/Article: < 0.3% in formulation.

Amount used
Amount used: 550 g
Remarks: Inhalation

Frequency and duration of use
Frequency of use: 1 event/day
Remarks: Inhalation, Dermal
Exposure duration: 90 min
Remarks: Inhalation
Application duration: 90 min
Remarks: Inhalation
Release duration: 90 min
Remarks: Dermal

Human factors not influenced by risk management
Dermal exposure: 430 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor: Indoor
Room size: 58 m³
Temperature: 20 °C
Ventilation rate per hour: 0.5
MONOETHANOLAMINE (MEA)

Remarks : L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Do not touch eyes when using this product.

2.4 Contributing scenario controlling consumer exposure for: PC18: Ink and toners

Activity : Use in Printing inks, Service life - consumers

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 3%.

Amount used
Amount used : 8.85 g
Remarks : Inhalation
Amount used : 200 g
Remarks : Dermal

Frequency and duration of use
Frequency of use : 1 event/day
Remarks : Inhalation, Dermal
Release duration : 720 min
Remarks : Inhalation

Human factors not influenced by risk management
Dermal exposure : 430 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor : Indoor
Room size : 58 m³
Temperature : 20 °C
Ventilation rate per hour : 0.5
Remarks : L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Do not touch eyes when using this product.

2.5 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers

Activity : Application, Use in Paints/Coatings

Product characteristics
Concentration of the Substance in Mixture/Article : < 0.3% in formulation.

Amount used
Amount used : 1250 g
Remarks : Inhalation
Frequency and duration of use

- **Frequency of use**: 1 event/day
- **Remarks**: Inhalation, Dermal
- **Exposure duration**: 132 min
- **Remarks**: Inhalation
- **Application duration**: 120 min
- **Remarks**: Inhalation
- **Release duration**: 120 min
- **Remarks**: Dermal

**Human factors not influenced by risk management**

- **Dermal exposure**: 860 cm²

**Other given operational conditions affecting consumers exposure**

- **Outdoor / Indoor**: Indoor
- **Room size**: 20 m³
- **Temperature**: 20 °C
- **Ventilation rate per hour**: 0.6 L/h

**Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)**

- **Consumer Measures**: Do not touch eyes when using this product.

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

#### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8d</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
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<tr>
<td></td>
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<td>Fresh water sediment</td>
<td>Fresh water sediment</td>
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<tr>
<td></td>
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<td>Marine water</td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00027</td>
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<tr>
<td></td>
<td></td>
<td>Soil</td>
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<td>Sewage treatment plant</td>
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#### Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
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</thead>
<tbody>
<tr>
<td>Method</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
<td>1.391 mg/m³</td>
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<tr>
<td>PC9a</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term dermal</td>
<td>0.03333 mg/kg bw/day</td>
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<td>PC9a</td>
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<td>Long term dermal</td>
<td>0.180 mg/kg bw/day</td>
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</tbody>
</table>

: Floor polish/sealer/stripper
: Use in Printing inks
: Paint strippers
: Service life - consumers
ERC8d: Wide dispersive outdoor use of processing aids in open systems
PC18: Ink and toners
PC9a: Coatings and paints, thinners, paint removers

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario
1. Short title of Exposure Scenario: Industrial uses, Use in oilfield applications

Main User Groups: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Process categories:
- 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

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amount used:
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 100%
- Fraction of Regional tonnage used locally: 100%
- Maximum daily site tonnage (kg/day): 2.857 kg/day

Environment factors not influenced by risk management:
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure:
- Number of emission days per year: 350
- Emission or Release Factor: Air: 0.1%
- Emission or Release Factor: Water: 0.05%
- Emission or Release Factor: Soil: 0.1%

Technical conditions and measures / Organizational measures:
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Air: Waste gas treatment by thermal oxidation, Exhaust air scrubber
- Water: Aerobic biological treatment
- Soil: Sewage sludge incineration, No application of sewage sludge
to soil. Sealing of all relevant soil surfaces in the facility is required.

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%. Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%. Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management

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**MONOETHANOLAMINE (MEA)**

Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented

---

**Conditions and measures related to personal protection, hygiene and health evaluation**
   Provide adequate information, instruction and training for operators.
   In case of exposure:
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   Gloves APF 20 (Effectiveness (of a measure): 95 %)
   Use suitable eye protection.

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**2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)**

**Product characteristics**
   Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
   Physical Form (at time of use) : liquid

**Frequency and duration of use**
   Exposure duration : < 480 min
   Remarks : Inhalation, Dermal
   Frequency of use : <= 240 days/year

**Human factors not influenced by risk management**
   Dermal exposure : Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
   Outdoor / Indoor : Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
   Assumes a good basic standard of occupational hygiene is implemented

---

**Conditions and measures related to personal protection, hygiene and health evaluation**
   Provide adequate information, instruction and training for operators.
   In case of exposure:
   Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
   Gloves APF 20 (Effectiveness (of a measure): 95 %)
   Use suitable eye protection.
2.5 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Activity: General exposures, Batch process, With sample collection, Open systems, Industrial use

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palms of both hands (480 cm²)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
- Wear suitable coveralls to prevent exposure to the skin.
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness of a measure): 95 %
- Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
- Outdoor / Indoor: Indoor
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95 %
Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
</table>

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## MONOETHANOLAMINE (MEA)

<table>
<thead>
<tr>
<th>Method</th>
<th>Fresh water</th>
<th>Fresh water sediment</th>
<th>Marine water</th>
<th>Marine sediment</th>
<th>Soil</th>
<th>Sewage treatment plant</th>
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<tbody>
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<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001 mg/L</td>
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<tr>
<td>EUSES</td>
<td>0.0002</td>
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<td>0.0002</td>
<td>0.0002</td>
<td>0.0002</td>
<td>0.0001</td>
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</table>

### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.00127 mg/m³</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>&lt; 0.0001 mg/kg bw/day</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.12725 mg/m³</td>
<td>0.03856</td>
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</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00343 mg/kg bw/day</td>
<td>0.00312</td>
<td></td>
</tr>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00171 mg/kg bw/day</td>
<td>0.00156</td>
<td></td>
</tr>
<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.63625 mg/m³</td>
<td>0.19280</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01714 mg/kg bw/day</td>
<td>0.01558</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.63625 mg/m³</td>
<td>0.19280</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.03429 mg/kg bw/day</td>
<td>0.03117</td>
<td></td>
</tr>
</tbody>
</table>

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Professional uses, Use in oilfield applications

| Main User Groups | SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| Environmental Release Categories | ERC8d: Wide dispersive outdoor use of processing aids in open systems |
| Process categories | 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 |

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

**Amount used**

- Regional use tonnage (tonnes/year): 1 ton(s/year)
- Fraction of EU tonnage used in region: 10 %
- Fraction of Regional tonnage used locally: 0.2 %
- Maximum daily site tonnage (kg/day): 0.000548 kg/day

**Environment factors not influenced by risk management**

- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

**Other given operational conditions affecting environmental exposure**

- Number of emission days per year: 365
- Emission or Release Factor: Air: 1.5 %
- Emission or Release Factor: Water: 0.05 %
- Emission or Release Factor: Soil: 0.1 %
- Remarks: ESVOC SpERC 8.5b.v1

**Technical conditions and measures / Organizational measures**

- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant

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

- Type of Sewage Treatment Plant: Municipal sewage treatment plant
2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation

Provide adequate information, instruction and training for operators.

In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%.
| Physical Form (at time of use) | liquid |

Frequency and duration of use

| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
| Frequency of use | <= 240 days/year |

Human factors not influenced by risk management

| Dermal exposure | Palm of one hand (240 cm²) |

Other operational conditions affecting workers exposure

| Outdoor / Indoor | Indoor |

Organisational measures to prevent/limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

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

Provide adequate information, instruction and training for operators.

In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers the percentage of the substance in the product up to 5%.
| Physical Form (at time of use) | liquid |

Frequency and duration of use

| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 80 %)

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %) Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection.

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

#### Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartments</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8d</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
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<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>

#### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.00127 mg/m³</td>
<td>0.00039</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>&lt; 0.0001 mg/kg bw/day</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.63625 mg/m³</td>
<td>0.19280</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00343 mg/kg bw/day</td>
<td>0.00312</td>
<td></td>
</tr>
<tr>
<td>PROC3</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00171 mg/kg bw/day</td>
<td>0.00156</td>
<td></td>
</tr>
<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01714 mg/kg bw/day</td>
<td>0.01558</td>
<td></td>
</tr>
<tr>
<td>PROC8a</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.63625 mg/m³</td>
<td>0.19280</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>0.03429</td>
<td>0.03117</td>
<td></td>
</tr>
</tbody>
</table>
MONOETHANOLAMINE (MEA)

| | | | dermal | mg/kg bw/day |

ERC8d: Wide dispersive outdoor use of processing aids in open systems
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

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

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Industrial uses, Adhesives, sealants

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

Environmental Release Categories : ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Process categories :
- PROC1: Use in closed process, no likelihood of exposure
- PROC2: Use in closed, continuous process with occasional controlled exposure
- PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC7: Industrial spraying
- 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
- PROC15: Use as laboratory reagent
- PROC17: Lubrication at high energy conditions in metal working operations
- PROC19: Manual activities involving hand contact

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amount used

Regional use tonnage : 1 ton(s)/year

(tonnes/year):
Fraction of EU tonnage used in region: 100 %
Fraction of Regional tonnage used locally: 100 %
Maximum daily site tonnage (kg/day): 4.545 kg/day

Environment factors not influenced by risk management

Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure

Number of emission days per year: 220
Emission or Release Factor: Air: 98 %
Emission or Release Factor: Water: 2 %
Emission or Release Factor: Soil: 0 %
Remarks: ESVOC SpERC 4.3a.v1
Monoethanolamine (MEA)

Technical conditions and measures / Organizational measures
Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
Air: Waste gas treatment by thermal oxidation, Filtration, Adsorption, Exhaust air scrubber
Water: Aerobic biological treatment
Soil: No application of sewage sludge to soil, Sewage sludge incineration, Sealing of all relevant soil surfaces in the facility is required

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity: Equipment cleaning and maintenance, Professional use
Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%
Physical Form (at time of use): liquid
Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
**MONOETHANOLAMINE (MEA)**

Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%

Physical Form (at time of use): liquid

**Frequency and duration of use**

Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

Dermal exposure: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**

Outdoor / Indoor: Indoor

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

Assumes a good basic standard of occupational hygiene is implemented

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

Provide adequate information, instruction and training for operators.

In case of exposure:
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness of a measure): 95 %
- Use suitable eye protection.

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

Product characteristics

Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%

Physical Form (at time of use): liquid

**Frequency and duration of use**

Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

Dermal exposure: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**

Outdoor / Indoor: Indoor

**Technical conditions and measures**

Local exhaust ventilation (Effectiveness of a measure): 90 %
MONOETHANOLAMINE (MEA)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.5 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.
2.6 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

**Activity**
- Option 1, Spraying (automatic/robotic)

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

**Amount used**
- Application rate: 0.3 - 3 L/min

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
- Room size: 300 m³
- Temperature: 20 °C
- Ventilation rate per hour: 3

Technical conditions and measures
- Ensure fixed capturing hood is used. (Effectiveness (of a measure): 99 %)

Organisational measures to prevent/limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Specific worker training
- Wear suitable coveralls to prevent exposure to the skin.
- In case of exposure:
  - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
  - Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Wear suitable face shield.

2.7 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying
Activity: Option 2, Manual spray application (liquid products)

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

**Amount used**
- Application rate: 0.3 - 3 L/min

**Frequency and duration of use**
- Exposure duration: < 240 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
- Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
- Room size: 300 m³
- Temperature: 20 °C
- Ventilation rate per hour: 3
- Remarks: Spraying with no or low compressed air use. Ensure that direction of application is only horizontal or downward.

**Organisational measures to prevent/limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented.
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
- Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Gloves APF 20 (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Wear suitable face shield.
- Wear respiratory protection. (Effectiveness (of a measure): 90 %)

**2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year
MONOETHANOLAMINE (MEA)

Human factors not influenced by risk management
  Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
  Outdoor / Indoor: Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
  In case of exposure:
    Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
    Gloves APF 20 (Effectiveness (of a measure): 95 %)
    Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics
  Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
  Physical Form (at time of use): liquid

Frequency and duration of use
  Exposure duration: < 480 min
  Remarks: Inhalation, Dermal
  Frequency of use: <= 240 days/year

Human factors not influenced by risk management
  Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
  Outdoor / Indoor: Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
Provide adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 10% |
| Physical Form (at time of use)                    | liquid                                               |

Frequency and duration of use

- Exposure duration: 60 - 240 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management

- Dermal exposure: Both hands (960 cm2)

Other operational conditions affecting workers exposure

- Outdoor / Indoor: Indoor

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.11 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics

| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 30% |
| Physical Form (at time of use)                    | liquid                                               |
Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.12 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 30%.
Physical Form (at time of use) : liquid

Frequency and duration of use
Exposure duration : < 480 min
Remarks : Inhalation, Dermal
Frequency of use : <= 240 days/year

Human factors not influenced by risk management
Dermal exposure : Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness (of a measure): 90 %)
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.13 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions in metal working operations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Application of liquids in high speed processes (large scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td></td>
</tr>
<tr>
<td>Concentration of the Substance in Mixture/Article</td>
<td>Covers percentage substance in the product up to 10%.</td>
</tr>
<tr>
<td>Physical Form (at time of use)</td>
<td>liquid</td>
</tr>
<tr>
<td>Frequency and duration of use</td>
<td></td>
</tr>
<tr>
<td>Exposure duration</td>
<td>&lt; 240 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>&lt;= 240 days/year</td>
</tr>
<tr>
<td>Human factors not influenced by risk management</td>
<td></td>
</tr>
<tr>
<td>Dermal exposure</td>
<td>Both hands (960 cm2)</td>
</tr>
<tr>
<td>Other operational conditions affecting workers exposure</td>
<td></td>
</tr>
<tr>
<td>Outdoor / Indoor</td>
<td>Indoor</td>
</tr>
<tr>
<td>Room size</td>
<td>300 m³</td>
</tr>
<tr>
<td>Temperature</td>
<td>&gt; 20 °C</td>
</tr>
<tr>
<td>Ventilation rate per hour</td>
<td>3</td>
</tr>
<tr>
<td>Technical conditions and measures</td>
<td></td>
</tr>
<tr>
<td>Local exhaust ventilation (Effectiveness (of a measure): 90 %)</td>
<td></td>
</tr>
</tbody>
</table>

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation

Specific worker training
Wear suitable coveralls to prevent exposure to the skin.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Use suitable eye protection.

2.14 Contributing scenario controlling worker exposure for: PROC19: Manual activities involving hand contact

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: 15 - 60 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands and main part of arms (1980 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

3. Exposure estimation and reference to its source

Environment

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC4</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>0.00058 mg/L</td>
<td>0.00685</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>0.00297 mg/kg dry</td>
<td>0.00685</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table: Concentrations in Different Environments

<table>
<thead>
<tr>
<th>Environment</th>
<th>Weight</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>0.00685</td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.00030 mg/kg dry weight</td>
<td>0.00685</td>
</tr>
<tr>
<td>Soil</td>
<td>0.00018 mg/kg dry weight</td>
<td>0.00502</td>
</tr>
<tr>
<td>Sewage treatment plant</td>
<td>0.00575 mg/L</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

### Table: Workers' Exposure Scenarios

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC1</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.00764 mg/m³</td>
<td>0.00231</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00051 mg/kg bw/day</td>
<td>0.00047</td>
<td></td>
</tr>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.7635 mg/m³</td>
<td>0.23136</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.02057 mg/kg bw/day</td>
<td>0.01870</td>
<td></td>
</tr>
<tr>
<td>PROC4</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.10286 mg/kg bw/day</td>
<td>0.09351</td>
<td></td>
</tr>
<tr>
<td>PROC5</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.20571 mg/kg bw/day</td>
<td>0.18701</td>
<td></td>
</tr>
<tr>
<td>PROC7</td>
<td>ART</td>
<td>Spraying (automatic/robotic)</td>
<td>0.430 mg/m³</td>
<td>0.13030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.21429 mg/kg bw/day</td>
<td>0.19481</td>
<td></td>
</tr>
<tr>
<td>PROC7</td>
<td>ART</td>
<td>Manual spray application (liquid products)</td>
<td>1.9 mg/m³</td>
<td>0.57576</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.10714 mg/kg bw/day</td>
<td>0.09740</td>
<td></td>
</tr>
<tr>
<td>PROC8b</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.19087 mg/m³</td>
<td>0.05784</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.20571 mg/kg bw/day</td>
<td>0.18701</td>
<td></td>
</tr>
<tr>
<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.10286 mg/kg bw/day</td>
<td>0.09351</td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.527 mg/m³</td>
<td>0.46273</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.13714 mg/kg bw/day</td>
<td>0.12467</td>
<td></td>
</tr>
</tbody>
</table>
### MONOETHANOLAMINE (MEA)

**Version 2**  
Revision Date 30.04.2019  
Print Date 05.11.2019  
GB / EN

<table>
<thead>
<tr>
<th>PROC</th>
<th>Source</th>
<th>Exposure Scenario</th>
<th>Long term inhalation</th>
<th>Long term dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC13</td>
<td>ECETOC TRA</td>
<td></td>
<td>0.7635 mg/m³</td>
<td>0.23136</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.20571 mg/kg bw/day</td>
<td>0.18701</td>
</tr>
<tr>
<td>PROC15</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.38175 mg/m³</td>
<td>0.11568</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.00514 mg/kg bw/day</td>
<td>0.00467</td>
</tr>
<tr>
<td>PROC17</td>
<td>ART</td>
<td>Long term inhalation</td>
<td>0.430 mg/m³</td>
<td>0.13030</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.13714 mg/kg bw/day</td>
<td>0.12467</td>
</tr>
<tr>
<td>PROC19</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.509 mg/m³</td>
<td>0.15424</td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.70714 mg/kg bw/day</td>
<td>0.64286</td>
</tr>
</tbody>
</table>

**ERC4**: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)  
**PROC1**: Use in closed process, no likelihood of exposure  
**PROC10**: Roller application or brushing  
**PROC13**: Treatment of articles by dipping and pouring  
**PROC15**: Use as laboratory reagent  
**PROC17**: Lubrication at high energy conditions in metal working operations  
**PROC19**: Manual activities involving hand contact  
**PROC2**: Use in closed, continuous process with occasional controlled exposure  
**PROC4**: Use in batch and other process (synthesis) where opportunity for exposure arises  
**PROC5**: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)  
**PROC7**: Industrial spraying  
**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)

---

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

For further information, please also consult our Internet site: Downstream Users  
1. Short title of Exposure Scenario: Professional uses, Adhesives, sealants

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

Environmental Release Categories: ERC8a: Wide dispersive indoor use of processing aids in open systems

Process categories:
- PROC2: Use in closed, continuous process with occasional controlled exposure
- 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
- PROC15: Use as laboratory reagent
- PROC17: Lubrication at high energy conditions in metal working operations
- PROC19: Manual activities involving hand contact

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

Amount used:
- Regional use tonnage (tonnes/year): 1 ton(s)/year
- Fraction of EU tonnage used in region: 10%
- Fraction of Regional tonnage used locally: 0.050%
- Maximum daily site tonnage (kg/day): 0.000137 kg/day

Environment factors not influenced by risk management:
- Dilution Factor (River): 10
- Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure:
- Number of emission days per year: 365
- Emission or Release Factor: Air: 98%
- Emission or Release Factor: Water: 1%
- Emission or Release Factor: Soil: 1%
- Remarks: ESVOC SpERC 8.3b.v1

Technical conditions and measures / Organizational measures:
- Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- Water: Aerobic biological treatment
Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
  Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
  Physical Form (at time of use): liquid

Frequency and duration of use
  Exposure duration: < 480 min
  Remarks: Inhalation, Dermal
  Frequency of use: <= 240 days/year

Human factors not influenced by risk management
  Dermal exposure: Palms of both hands (480 cm²)

Other operational conditions affecting workers exposure
  Outdoor / Indoor: Indoor

Technical conditions and measures
  Local exhaust ventilation (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure
  Assumes a good basic standard of occupational hygiene is implemented

Conditions and measures related to personal protection, hygiene and health evaluation
  Provide adequate information, instruction and training for operators.
  In case of exposure:
    Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
    Use suitable eye protection.

2.3 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
  Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
  Physical Form (at time of use): liquid

Frequency and duration of use
  Exposure duration: < 480 min
  Remarks: Inhalation, Dermal
**MONOETHANOLAMINE (MEA)**

Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

- Dermal exposure: Both hands (960 cm²)

**Other operational conditions affecting workers exposure**

- Outdoor / Indoor: Indoor

**Technical conditions and measures**

- Local exhaust ventilation (Effectiveness of a measure): 90 %

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

Assumes a good basic standard of occupational hygiene is implemented

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

- Provide adequate information, instruction and training for operators.
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
- Use suitable eye protection.

**2.4 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**

**Product characteristics**

- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**

- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**

- Dermal exposure: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**

- Outdoor / Indoor: Indoor

**Technical conditions and measures**

- Local exhaust ventilation (Effectiveness of a measure): 80 %

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

Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Prove adequate information, instruction and training for operators.
In case of exposure:
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Use suitable eye protection.

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

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm2)

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

Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)
Wear suitable face shield.

2.6 Contributing scenario controlling worker exposure for: PROC11: Non-industrial spraying

Activity: Manual spray application (liquid products)
Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
- Physical Form (at time of use): liquid
**MONOETHANOLAMINE (MEA)**

**Amount used**
Application rate: 0.3 - 3 L/min

**Frequency and duration of use**
- Exposure time: < 120 min
- Frequency of use: minutes/day
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
Dermal exposure: Both hands plus forearms (1500 cm²).

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
- Room size: 100 m³
- Temperature: 20 °C
- Ventilation rate per hour: 1, Spraying with no or low compressed air use. Ensure that direction of application is only horizontal or downward.

**Organisational measures to prevent/limit releases, dispersion and exposure**
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

**Conditions and measures related to personal protection, hygiene and health evaluation**
Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Wear respiratory protection. (Effectiveness (of a measure): 95 %)
- Wear suitable face shield.

**2.7 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring**

**Product characteristics**
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 30%.
- Physical Form (at time of use): liquid

**Frequency and duration of use**
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

**Human factors not influenced by risk management**
Dermal exposure: Palms of both hands (480 cm²)

**Other operational conditions affecting workers exposure**
- Outdoor / Indoor: Indoor
Technical conditions and measures
Local exhaust ventilation  (Effectiveness (of a measure): 80 %)

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear suitable face shield.

2.8 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
| Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 30%.
| Physical Form (at time of use) | liquid |

Frequency and duration of use
| Exposure duration | < 480 min |
| Remarks | Inhalation, Dermal |
| Frequency of use | <= 240 days/year |

Human factors not influenced by risk management
Dermal exposure : Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation  (Effectiveness (of a measure): 80 %)

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.9 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions in metal working operations

Activity: Option 1, Application of liquids in high speed processes, Small scale, Manual process

Product characteristics
- Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%
- Physical Form (at time of use): liquid

Frequency and duration of use
- Exposure duration: < 240 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
- Outdoor / Indoor: Indoor
- Room size: 100 m³
- Temperature: > 20 °C
- Ventilation rate per hour: 1

Technical conditions and measures
- Ensure fixed capturing hood is used. (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 95 %)
- Wear suitable coveralls to prevent exposure to the skin.
- Wear respiratory protection. (Effectiveness (of a measure): 90 %)
- Use suitable eye protection.

2.10 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions in metal working operations

Activity: Option 2, Application of liquids in high speed processes, Small scale, Manual process
Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: < 90 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands (960 cm²)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor
Room size: 100 m³
Temperature: > 20 °C
Ventilation rate per hour: 1

Technical conditions and measures
Ensure fixed capturing hood is used. (Effectiveness (of a measure): 90 %)

Organisational measures to prevent/limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

2.11 Contributing scenario controlling worker exposure for: PROC19: Manual activities involving hand contact

Product characteristics
Concentration of the Substance in Mixture/Article: Covers percentage substance in the product up to 10%.
Physical Form (at time of use): liquid

Frequency and duration of use
Exposure duration: 60 - 240 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Both hands and main part of arms (1980 cm²)

Other operational conditions affecting workers exposure
Organisational measures to prevent /limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
(Effectiveness (of a measure): 95 %)
Wear suitable coveralls to prevent exposure to the skin.
Wear respiratory protection. (Effectiveness (of a measure): 90 %)
Wear suitable face shield.

3. Exposure estimation and reference to its source

**Environment**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8a</td>
<td>EUSES</td>
<td>Fresh water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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<tr>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
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<tr>
<td></td>
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<td>Marine water</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td></td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
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<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td></td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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</tbody>
</table>

**Workers**

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC2</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>0.7635 mg/m³</td>
<td>0.23136</td>
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<tr>
<td></td>
<td>ECETOC TRA</td>
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<td>PROC8b</td>
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<td>ECETOC TRA</td>
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<td>0.20571</td>
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<td>PROC</td>
<td>Source</td>
<td>Route</td>
<td>Exposure Scenario</td>
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<td>-------------</td>
<td>---------------</td>
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<td>PROC9</td>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>Inhalation</td>
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<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>1.527 mg/m³</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.46273</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC10</td>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>Inhalation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>0.63625 mg/m³</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.19280</td>
<td></td>
<td></td>
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<tr>
<td>PROC11</td>
<td>ART</td>
<td>Manual spray</td>
<td>Application (liquid products)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Long term</td>
<td>Inhalation</td>
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<td>dermal</td>
<td>1.75 mg/m³</td>
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<td>0.53030</td>
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<td>PROC13</td>
<td>ECETOC TRA</td>
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<td>Inhalation</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>1.527 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.46273</td>
<td></td>
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<td>PROC15</td>
<td>ECETOC TRA</td>
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<td>Inhalation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>dermal</td>
<td>0.7635 mg/m³</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.23136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROC17</td>
<td>ART</td>
<td>Option 1</td>
<td>Lubrication at high energy conditions in metal working operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term</td>
<td>Inhalation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>dermal</td>
<td>1.4 mg/m³</td>
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<td></td>
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<td>0.42424</td>
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<td>PROC17</td>
<td>ART</td>
<td>Option 2</td>
<td>Lubrication at high energy conditions in metal working operations</td>
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<td></td>
<td></td>
<td>Long term</td>
<td>Inhalation</td>
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<td></td>
<td></td>
<td>dermal</td>
<td>2.7 mg/m³</td>
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<td></td>
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<td></td>
<td>0.81818</td>
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<td>PROC19</td>
<td>ECETOC TRA</td>
<td>Long term</td>
<td>Inhalation</td>
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<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>0.38175 mg/m³</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>0.11568</td>
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</tbody>
</table>

**ERC8a**: Wide dispersive indoor use of processing aids in open systems  
**PROC10**: Roller application or brushing  
**PROC11**: Non-industrial spraying  
**PROC13**: Treatment of articles by dipping and pouring  
**PROC15**: Use as laboratory reagent  
**PROC17**: Lubrication at high energy conditions in metal working operations  
**PROC19**: Manual activities involving hand contact  
**PROC2**: Use in closed, continuous process with occasional controlled exposure  
**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)

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

For further information, please also consult our Internet site: Downstream Users  
1. Short title of Exposure Scenario: Use in adhesives and sealants (Consumer)

Main User Groups : SU 21: Consumer uses: Private households (= general public = consumers)
Environmental Release Categories : ERC8a: Wide dispersive indoor use of processing aids in open systems
Chemical product category : PC1: Adhesives, sealants

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

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 10 %
Fraction of Regional tonnage used locally: 0.050 %
Maximum daily site tonnage (kg/day): 0.000137 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 365
Emission or Release Factor: Air: 98 %
Emission or Release Factor: Water: 1 %
Emission or Release Factor: Soil: 1 %
Remarks: ESVOC SpERC 8.3b.v1

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

Activity: Application

Amount used
Amount used: 22000 g
Remarks: Inhalation

Frequency and duration of use
Frequency of use: 1 event/day
Remarks: Inhalation, Dermal
Exposure duration: 480 min
Remarks: Inhalation
Application duration: 480 min
Remarks: Inhalation
Release duration: 480 min
Remarks: Dermal

Human factors not influenced by risk management
Dermal exposure: 430 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor: Indoor
Room size: 58 m³
Temperature: 20 °C
Ventilation rate per hour: 2.5
Remarks: L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)
Consumer Measures: Do not touch eyes when using this product.

2.3 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

Activity: Application

Amount used
Amount used: 750 g
Remarks: Inhalation
Amount used: 0.5 g
Remarks: Dermal

Frequency and duration of use
Frequency of use: 1 event/day
Remarks: Inhalation, Dermal
Exposure duration: 240 min
Remarks: Inhalation
Application duration: 240 min
Remarks: Inhalation

Human factors not influenced by risk management
Dermal exposure: 110 cm²

Other given operational conditions affecting consumers exposure
Outdoor / Indoor: Indoor
Room size: 58 m³
Temperature: 20 °C
Ventilation rate per hour: 2.5
Remarks: L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)
Consumer Measures: Do not touch eyes when using this product.
2.4 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

<table>
<thead>
<tr>
<th>Activity</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amount used</strong></td>
<td></td>
</tr>
<tr>
<td>Amount used</td>
<td>9000 g</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation</td>
</tr>
<tr>
<td><strong>Frequency and duration of use</strong></td>
<td></td>
</tr>
<tr>
<td>Frequency of use</td>
<td>1 event/day</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Exposure duration</td>
<td>75 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation</td>
</tr>
<tr>
<td>Application duration</td>
<td>75 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation</td>
</tr>
<tr>
<td>Release duration</td>
<td>75 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Dermal</td>
</tr>
<tr>
<td><strong>Human factors not influenced by risk management</strong></td>
<td></td>
</tr>
<tr>
<td>Dermal exposure</td>
<td>110 cm²</td>
</tr>
<tr>
<td><strong>Other given operational conditions affecting consumers exposure</strong></td>
<td></td>
</tr>
<tr>
<td>Outdoor / Indoor</td>
<td>Indoor</td>
</tr>
<tr>
<td>Room size</td>
<td>58 m³</td>
</tr>
<tr>
<td>Temperature</td>
<td>20 °C</td>
</tr>
<tr>
<td>Ventilation rate per hour</td>
<td>2.5 L/h</td>
</tr>
<tr>
<td>Remarks</td>
<td>L/h</td>
</tr>
<tr>
<td><strong>Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)</strong></td>
<td></td>
</tr>
<tr>
<td>Consumer Measures</td>
<td>Do not touch eyes when using this product.</td>
</tr>
</tbody>
</table>

2.5 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mixing and loading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amount used</strong></td>
<td></td>
</tr>
<tr>
<td>Amount used</td>
<td>20 g</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation</td>
</tr>
<tr>
<td>Amount used</td>
<td>0.050 g</td>
</tr>
<tr>
<td>Remarks</td>
<td>Dermal</td>
</tr>
<tr>
<td><strong>Frequency and duration of use</strong></td>
<td></td>
</tr>
<tr>
<td>Frequency of use</td>
<td>1 event/day</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation, Dermal</td>
</tr>
<tr>
<td>Exposure duration</td>
<td>5 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation</td>
</tr>
<tr>
<td>Application duration</td>
<td>5 min</td>
</tr>
<tr>
<td>Remarks</td>
<td>Inhalation</td>
</tr>
</tbody>
</table>
Human factors not influenced by risk management

Dermal exposure : 2 cm²

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor
Room size : 20 m³
Temperature : 20 °C
Ventilation rate per hour : 2.5
Remarks : L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Do not touch eyes when using this product.

2.6 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

Activity : Application

Amount used

Amount used : 20 g
Remarks : Inhalation
Amount used : 0.100 g
Remarks : Dermal

Frequency and duration of use

Frequency of use : 1 event/day
Remarks : Inhalation, Dermal
Exposure duration : 120 min
Remarks : Inhalation
Application duration : 30 min
Remarks : Inhalation

Human factors not influenced by risk management

Dermal exposure : 43 cm²

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor
Room size : 20 m³
Temperature : 20 °C
Ventilation rate per hour : 2.5
Remarks : L/h

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Do not touch eyes when using this product.

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>Compartments</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERC8a</td>
<td>EUSES</td>
<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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<td></td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
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<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
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<tr>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
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</table>

### Consumers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC1</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
<td>0.57757 mg/m³</td>
<td>0.28878</td>
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<tr>
<td></td>
<td>&quot;Consexpo&quot;</td>
<td>Long term dermal</td>
<td>0.120 mg/kg bw/day</td>
<td>0.500</td>
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<tr>
<td>PC1</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
<td>1.163 mg/m³</td>
<td>0.58172</td>
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<tr>
<td></td>
<td>&quot;Consexpo&quot;</td>
<td>Long term dermal</td>
<td>0.050 mg/kg bw/day</td>
<td>0.20833</td>
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<tr>
<td>PC1</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
<td>0.93262 mg/m³</td>
<td>0.46631</td>
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<tr>
<td></td>
<td>&quot;Consexpo&quot;</td>
<td>Long term dermal</td>
<td>0.09375 mg/kg bw/day</td>
<td>0.39063</td>
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<tr>
<td>PC1</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
<td>0.00024 mg/m³</td>
<td>0.00012</td>
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<tr>
<td></td>
<td>&quot;Consexpo&quot;</td>
<td>Long term dermal</td>
<td>0.04167 mg/kg bw/day</td>
<td>0.17361</td>
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<tr>
<td>PC1</td>
<td>&quot;Consexpo&quot;</td>
<td>Long term inhalation</td>
<td>0.77522 mg/m³</td>
<td>0.38761</td>
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<tr>
<td></td>
<td>&quot;Consexpo&quot;</td>
<td>Long term dermal</td>
<td>0.08333 mg/kg bw/day</td>
<td>0.34722</td>
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</tr>
</tbody>
</table>

- Two-component glue
- Wood parquet glue
- Carpet glue
- ERC8a: Wide dispersive indoor use of processing aids in open systems
- PC1: Adhesives, sealants
4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users
1. Short title of Exposure Scenario: Laboratory Reagents

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

Environmental Release Categories: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Process categories: PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Amount used
Regional use tonnage (tonnes/year): 1 ton(s)/year
Fraction of EU tonnage used in region: 100 %
Fraction of Regional tonnage used locally: 100 %
Maximum daily site tonnage (kg/day): 50 kg/day

Environment factors not influenced by risk management
Dilution Factor (River): 10
Dilution Factor (Coastal Areas): 100

Other given operational conditions affecting environmental exposure
Number of emission days per year: 20
Emission or Release Factor: Air: 2.5 %
Emission or Release Factor: Water: 2 %
Emission or Release Factor: Soil: 0.01 %
Remarks: ESVOC SPERC 4.24.v1

Technical conditions and measures / Organizational measures
Compartment: Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
Water: Aerobic biological treatment

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant: Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use): liquid
Frequency and duration of use

Exposure duration: < 480 min
Remarks: Inhalation, Dermal
Frequency of use: <= 240 days/year

Human factors not influenced by risk management
Dermal exposure: Palm of one hand (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor: Indoor

Technical conditions and measures
Local exhaust ventilation (Effectiveness of a measure): 90%

Organisational measures to prevent / limit releases, dispersion and exposure
Assumes a good basic standard of occupational hygiene is implemented
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
Specific worker training
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.
Gloves APF 20 (Effectiveness of a measure): 95%
Wear suitable coveralls to prevent exposure to the skin.
Use suitable eye protection.

3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Environment</th>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value Description</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC4</td>
<td>EUSES</td>
<td>Fresh water</td>
<td>Fresh water</td>
<td>0.00633 mg/L</td>
<td>0.07466</td>
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<td></td>
<td>Fresh water sediment</td>
<td>0.03228 mg/kg dry weight</td>
<td>0.07437</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.0063 mg/L</td>
<td>0.07466</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.00323 mg/kg dry weight</td>
<td>0.07437</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00065</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>0.06321 mg/L</td>
<td>0.00063</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC15</td>
<td>ECETOC TRA</td>
<td>Long term inhalation</td>
<td>1.273 mg/m³</td>
<td>0.38561</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECETOC TRA</td>
<td>Long term dermal</td>
<td>0.01714 mg/kg bw/day</td>
<td>0.01558</td>
<td></td>
</tr>
</tbody>
</table>

ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)  
PROC15: Use as laboratory reagent

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

For further information, please also consult our Internet site: Downstream Users  
1. Short title of Exposure Scenario: Laboratory Reagents

<table>
<thead>
<tr>
<th>Main User Groups</th>
<th>SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Release Categories</td>
<td>ERC8a: Wide dispersive indoor use of processing aids in open systems</td>
</tr>
<tr>
<td>Process categories</td>
<td>PROC15: Use as laboratory reagent</td>
</tr>
</tbody>
</table>

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

**Amount used**

<table>
<thead>
<tr>
<th>Regional use tonnage (tonnes/year):</th>
<th>1 ton(s)/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraction of EU tonnage used in region:</td>
<td>10 %</td>
</tr>
<tr>
<td>Fraction of Regional tonnage used locally:</td>
<td>0.050 %</td>
</tr>
<tr>
<td>Maximum daily site tonnage (kg/day):</td>
<td>0.000137 kg/day</td>
</tr>
</tbody>
</table>

**Environment factors not influenced by risk management**

- **Dilution Factor (River):** 10
- **Dilution Factor (Coastal Areas):** 100

**Other given operational conditions affecting environmental exposure**

- **Number of emission days per year:** 365
- **Emission or Release Factor: Air:** 50 %
- **Emission or Release Factor: Water:** 50 %
- **Emission or Release Factor: Soil:** 0 %

**Remarks:** ESVOC SPERC 8.17.v1

**Technical conditions and measures / Organizational measures**

- **Compartment:** Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Sewage treatment plant
- **Water:** Aerobic biological treatment

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

- **Type of Sewage Treatment Plant:** Municipal sewage treatment plant

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

**Product characteristics**

- **Concentration of the Substance in Mixture/Article:** Covers the percentage of the substance in the product up to 100 % (unless stated differently).
- **Physical Form (at time of use):** liquid
Frequency and duration of use
- Exposure duration: < 480 min
- Remarks: Inhalation, Dermal
- Frequency of use: <= 240 days/year

Human factors not influenced by risk management
- Dermal exposure: Palm of one hand (240 cm²)

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

Technical conditions and measures
- Local exhaust ventilation (Effectiveness of a measure): 80 %

Organisational measures to prevent/limit releases, dispersion and exposure
- Assumes a good basic standard of occupational hygiene is implemented
- Supervision in place to check that the RMMs in place are being used correctly and OCs followed.

Conditions and measures related to personal protection, hygiene and health evaluation
- Specific worker training
- Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness of a measure): 95 %
- Wear suitable coveralls to prevent exposure to the skin.
- Use suitable eye protection.

3. Exposure estimation and reference to its source

<table>
<thead>
<tr>
<th>Environment</th>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Compartment</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ERC8a</td>
<td>EUSES</td>
<td></td>
<td>Fresh water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fresh water sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Marine water</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Soil</td>
<td>&lt; 0.0001 mg/kg dry weight</td>
<td>0.00054</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sewage treatment plant</td>
<td>&lt; 0.0001 mg/L</td>
<td>&lt; 0.0001</td>
<td></td>
</tr>
</tbody>
</table>
**MONOETHANOLAMINE (MEA)**

Workers

<table>
<thead>
<tr>
<th>Contributing Scenario</th>
<th>Exposure Assessment Method</th>
<th>Specific conditions</th>
<th>Value</th>
<th>Level of Exposure</th>
<th>RCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC15</td>
<td>ECETOC TRA</td>
<td>Professional use</td>
<td>Long term inhalation</td>
<td>0.76 mg/m³</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Long term dermal</td>
<td>&lt; 0.01 mg/kg bw/day</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

ERC8a: Wide dispersive indoor use of processing aids in open systems
PROC15: Use as laboratory reagent

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

For further information, please also consult our Internet site: Downstream Users