



SAFETY DATA SHEET

MEGGLOBAL EUROPE GMBH

Safety Data Sheet according to Reg. (EU) No 2015/830

Product name: DIETHYLENE GLYCOL HIGH PURITY

Revision Date: 16.03.2017

Version: 16.0

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MEGGLOBAL EUROPE GMBH encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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

1.1 Product identifier

Product name: DIETHYLENE GLYCOL HIGH PURITY

Chemical name of the substance: 2,2'-oxybisethanol

CASRN: 111-46-6

EC-No.: 203-872-2

REACH Registration Number: 01-2119457857-21-0018

01-2119457857-21-0035

01-2119457857-21-0045

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

Identified uses: Manufacture of substance, industrial Use as an intermediate, industrial. Use as a process solvent. Distribution of substance, industrial. Formulation & (re)packing of substances and mixtures, industrial. Use in polymer production, industrial. Uses in Coatings, industrial Use in Cleaning Agents, industrial. Use in lubricants, industrial. Metal working fluids / rolling oils, industrial. Functional Fluids, industrial. Use in laboratories, industrial. Production of polymers, filled polymers, foams, coatings, adhesives and sealants, industrial. Use in Oil and Gas field drilling and production operations, industrial. Water treatment chemicals, industrial. Uses in Coatings, professional Use in paints, coatings, adhesives, sealants, foams, polymers and filled polymers, professional. Use in Cleaning Agents, professional. Metal working fluids / rolling oils, professional. Functional Fluids, professional. Use in laboratories, professional. Water treatment chemicals, professional. Uses in Coatings, consumer. Use in heat transfer and hydraulic fluids, consumer. Use in adhesives and sealants, consumer. Production of rigid foam, consumer. For details on use descriptors and exposure scenarios, please refer to the extended part of the Safety Data Sheet.

Uses advised against: Production of tobacco products Generation of artificial smoke Electronic cigarettes (e-cigarettes) Applications with direct or indirect food or potable water contact Any application where the product is to be purposely used as a non-reactant component where the potential for sufficient human contact and/or ingestion exists Freezer gel packs and heating packs Glues and pastes Manufacturing of munitions Sprinkler systems Deicing of road or sidewalks Deicing of aircraft lavatories Consumer or hospital usage for deodorizing or air "purifying" purposes by spraying as an aerosol Fluid for pressure testing piping Pharmaceutical Use Treatment of wood rot and fungus in marine applications

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

MEGGLOBAL EUROPE GMBH

BACHTOBELSTRASSE 3

8810 HORGEN
SWITZERLAND

Customer Information Number:

+41 44728 2077
www.meglobal.biz/SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: +41 44728 2820

Local Emergency Contact: 00 31 115 69 4982

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture**Classification according to Regulation (EC) No 1272/2008:**

Acute toxicity - Category 4 - Oral - H302

Specific target organ toxicity - repeated exposure - Category 2 - Oral - H373

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

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008:****Hazard pictograms**

Signal word: WARNING

Hazard statements

H302 Harmful if swallowed.

H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
+ P330

P314 Get medical advice/ attention if you feel unwell.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

This product is a substance.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 111-46-6 EC-No. 203-872-2 Index-No. 603-140-00-6	01-2119457857-21	>= 99.0 - <= 100.0 %	2,2'-oxybisethanol	Acute Tox. - 4 - H302 STOT RE - 2 - H373
CASRN 107-21-1 EC-No. 203-473-3 Index-No. 603-027-00-1	01-2119456816-28	>= 0.0 - <= 0.2 %	Ethylene glycol	Acute Tox. - 4 - H302 STOT RE - 2 - H373

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

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Immediately flush skin with water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 1/2 tsp.) (8 ml)

liquor for each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 tbsp.) for a 40 pound child or 36 ml for an 18 kg child].

4.2 Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Due to structural analogy and clinical data, this material may have a mechanism of intoxication similar to ethylene glycol. On that basis, treatment similar to ethylene glycol intoxication may be of benefit. In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has

passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Collect in suitable and properly labeled containers. Small spills: Absorb with materials such as: Cat litter. Sand. Sawdust. Vermiculite. Zorb-all®. Hazorb®. Large spills: Dike area to contain spill. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with eyes, skin, and clothing. Do not swallow. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities: Do not store near food, foodstuffs, drugs or potable water supplies. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
2,2'-oxybisethanol	US WEEL	TWA	10 mg/m ³
	Dow IHG	TWA	84 mg/m ³
	GB EH40	TWA	101 mg/m ³ 23 ppm
Ethylene glycol	ACGIH	STEL Aerosol only	10 mg/m ³
	ACGIH	TWA Vapour and aerosol	25 ppm
	ACGIH	STEL Vapour and aerosol	50 ppm
	Dow IHG	TWA	50 mg/m ³
	Dow IHG	STEL	100 mg/m ³
	2000/39/EC	TWA	52 mg/m ³ 20 ppm
	2000/39/EC	STEL	104 mg/m ³ 40 ppm
	2000/39/EC	TWA	SKIN
	2000/39/EC	STEL	SKIN
	GB EH40	TWA Vapour	52 mg/m ³ 20 ppm
	GB EH40	TWA particles	10 mg/m ³
GB EH40	TWA Vapour	SKIN	
GB EH40	STEL Vapour	104 mg/m ³ 40 ppm	
GB EH40	TWA particles	SKIN	
GB EH40	STEL Vapour	SKIN	

Derived No Effect Level Workers

<i>Acute - systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	106 mg/kg bw/day	60 mg/m ³	n.a.	60 mg/m ³

Consumers

<i>Acute - systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Predicted No Effect Concentration

Compartment	PNEC	Remarks
Fresh water	10 mg/l	
Marine water	1 mg/l	
Intermittent releases	10 mg/l	
Fresh water sediment	20.9 mg/kg	
Marine sediment	2.09 mg/kg	
Soil	1.53 mg/kg	
STP	199.5 mg/l	

8.2 Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Use gloves with insulation for thermal protection (EN 407), when needed. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task. When handling hot material, protect skin from thermal burns as well as from skin absorption.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

Physical state	Liquid.
Color	Colorless
Odor	odourless
Odor Threshold	No test data available
pH	No test data available
Melting point/range	<i>No test data available</i>
Freezing point	-6.5 °C <i>Literature</i>
Boiling point (760 mmHg)	244.9 °C <i>Literature</i>
Flash point	closed cup 138 °C <i>Literature</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not expected to form explosive dust-air mixtures.
Lower explosion limit	2.0 % vol <i>Calculated.</i>
Upper explosion limit	12.3 % vol <i>Estimated.</i>
Vapor Pressure	0.008 hPa at 25 °C <i>Literature</i>
Relative Vapor Density (air = 1)	3.65 <i>Literature</i>
Relative Density (water = 1)	1.118 at 20 °C <i>Literature</i>
Water solubility	100 % at 20 °C <i>Literature</i>
Partition coefficient: n-octanol/water	log Pow: -1.98 <i>Estimated.</i>
Auto-ignition temperature	229 °C <i>Literature</i>
Decomposition temperature	No test data available
Dynamic Viscosity	35.7 mPa.s at 20 °C <i>Literature</i>
Kinematic Viscosity	No data available
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Liquid Density	1.18 g/cm ³ at 20 °C <i>Literature</i>
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available

10.2 Chemical stability: Thermally stable at recommended temperatures and pressures.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

10.5 Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Oral toxicity is expected to be moderate in humans due to diethylene glycol even though tests with animals show a lower degree of toxicity. Ingestion of quantities (approximately 65 mL (2 oz.) for diethylene glycol or 100 mL (3 oz.) for ethylene glycol) has caused death in humans. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure.

As product: Single dose oral LD50 has not been determined.

LD50, Rat, male, 19,600 mg/kg

Lethal Dose, Human, adult, 65 ml Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin exposure to large quantities may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts.

LD50, Rabbit, 13,330 mg/kg

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. With good ventilation, single exposure is not expected to cause adverse effects. If material is heated or areas are poorly ventilated, vapor/mist may accumulate and cause respiratory irritation and symptoms such as headache and nausea.

LC50, Rat, 4 Hour, Aerosol, > 4.6 mg/l The LC50 value is greater than the Maximum Attainable Concentration. No deaths occurred at this concentration.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause slight temporary eye irritation.
Corneal injury is unlikely.

Sensitization

Did not cause allergic skin reactions when tested in humans.
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In humans, effects have been reported on the following organs:

Kidney.

Gastrointestinal tract.

In humans, symptoms may include:

Headache.

Nausea and/or vomiting.

Abdominal discomfort.

In animals, effects have been reported on the following organs:

Liver.

Carcinogenicity

Diethylene glycol has been tested for carcinogenicity in animal studies and is not believed to pose a carcinogenic risk to man.

Teratogenicity

Diethylene glycol has caused toxicity to the fetus and some birth defects at maternally toxic, high doses in animals. Other animal studies have not reproduced birth defects even at much higher doses that caused severe maternal toxicity.

Reproductive toxicity

Diethylene glycol did not interfere with reproduction in animal studies except at very high doses.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity**Acute toxicity to fish**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 75,200 mg/l, OECD Test Guideline 203 or Equivalent

Toxicity to bacteria

EC50, activated sludge, 3 Hour, > 1,000 mg/l, OECD 209 Test

12.2 Persistence and degradability

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 90 - 100 %

Exposure time: 20 d

Method: OECD Test Guideline 301A or Equivalent

10-day Window: Not applicable

Biodegradation: 82 - 98 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

12.3 Bioaccumulative potential

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.98 at 20 °C Estimated.

Bioconcentration factor (BCF): 100 Fish Measured

12.4 Mobility in soil

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): < 1 Estimated.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

- | | | |
|------|------------------------------|---|
| 14.1 | UN number | Not applicable |
| 14.2 | UN proper shipping name | Not regulated for transport |
| 14.3 | Transport hazard class(es) | Not applicable |
| 14.4 | Packing group | Not applicable |
| 14.5 | Environmental hazards | Not considered environmentally hazardous based on available data. |
| 14.6 | Special precautions for user | No data available. |

Classification for INLAND waterways (ADNR/ADN):

- | | | |
|------|------------------------------|---|
| 14.1 | UN number | Not applicable |
| 14.2 | UN proper shipping name | Not regulated for transport |
| 14.3 | Transport hazard class(es) | Not applicable |
| 14.4 | Packing group | Not applicable |
| 14.5 | Environmental hazards | Not considered environmentally hazardous based on available data. |
| 14.6 | Special precautions for user | No data available. |

Classification for SEA transport (IMO-IMDG):

- | | | |
|------|--|---|
| 14.1 | UN number | Not applicable |
| 14.2 | UN proper shipping name | Not regulated for transport |
| 14.3 | Transport hazard class(es) | Not applicable |
| 14.4 | Packing group | Not applicable |
| 14.5 | Environmental hazards | Not considered as marine pollutant based on available data. |
| 14.6 | Special precautions for user | No data available. |
| 14.7 | Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code | Consult IMO regulations before transporting ocean bulk |

Classification for AIR transport (IATA/ICAO):

- | | | |
|------|------------------------------|-----------------------------|
| 14.1 | UN number | Not applicable |
| 14.2 | UN proper shipping name | Not regulated for transport |
| 14.3 | Transport hazard class(es) | Not applicable |
| 14.4 | Packing group | Not applicable |
| 14.5 | Environmental hazards | Not applicable |
| 14.6 | Special precautions for user | No data available. |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

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

REACH Regulation (EC) No 1907/2006

This product has been registered, according to Regulation (EC) No. 1907/2006 (REACH). Manufacture, handling and all uses must take place under strictly controlled conditions according to Article 18(4) of REACH (Regulation (EC) No. 1907/2006 as amended)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Listed in Regulation: Not applicable

15.2 Chemical safety assessment

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.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.

Revision

Identification Number: 101197038 / A375 / Issue Date: 16.03.2017 / Version: 16.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)

Dow IHG	Dow Industrial Hygiene Guideline
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
SKIN	Absorbed via skin
STEL	Short-term exposure limit (15-minute reference period)
TWA	Long-term exposure limit (8-hour TWA reference period)
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

MEGGLOBAL EUROPE GMBH urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

1. Short title of Exposure Scenario: Manufacture of substance, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC15: Use as laboratory reagent 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
Environmental Release Categories	:	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of substances

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure > 10 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure > 10 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use
 Remarks : Covers daily exposures up to 8 hours (unless stated differently).

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13

			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
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) PROC15: Use as laboratory reagent
Environmental Release Categories	: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)**Technical conditions and measures / Organizational measures**

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: 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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use	
Remarks	: Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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 safety goggles (Effectiveness (of a measure): 95 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, 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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC8a	ECETOC TRA v2.0 Worker		Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37

		vessels/ large containers at dedicated facilities			
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use as a process solvent.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	:	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

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

Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

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

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to

Mixture/Article : 100 % (unless stated differently).

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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 safety goggles (Effectiveness (of a measure): 95 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, 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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

2.11 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

Activity : Production of preparations or articles by tableting, compression, extrusion, pelletisation

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA	Use in closed,	Chronic inhalation	4.42 mg/m ³	0.07

	v2.0 Worker	continuous process with occasional controlled exposure	systemic exposure		
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37

		small containers (dedicated filling line, including weighing)			
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75
PROC14	ECETOC TRA v2.0 Worker	Production of preparations or articles by tableting, compression, extrusion, pelletisation	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.43 mg/kg bw/day	0.003
			Combined routes		0.40
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Distribution of substance, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	:	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of substances

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to

Mixture/Article 100 % (unless stated differently).

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22

PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Formulation & (re)packing of substances and mixtures, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
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) 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) PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	:	ERC2: Formulation of preparations

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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 safety goggles (Effectiveness (of a measure): 95 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, 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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

2.10 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

Activity : Production of preparations or articles by tableting, compression, extrusion, pelletisation

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC3	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC5	ECETOC TRA	Mixing or blending in	Chronic inhalation	22.11 mg/m ³	0.37

	v2.0 Worker	batch processes for formulation of preparations and articles (multistage and/ or significant contact)	systemic exposure		
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC14	ECETOC TRA v2.0 Worker	Production of preparations or articles by tableting, compression, extrusion, pelletisation	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	3.43 mg/kg bw/day	0.03
			Combined routes		0.40
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)</p> <p>PROC6: Calendering operations</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	:	ERC6c: Industrial use of monomers for manufacture of thermoplastics

2.1 Contributing scenario controlling environmental exposure for: ERC6c: Industrial use of monomers for manufacture of thermoplastics

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently).

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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 safety goggles (Effectiveness (of a measure): 95 %)

2.7 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Activity : Calendering operations

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC5	ECETOC TRA	Mixing or blending in	Chronic inhalation	22.11 mg/m ³	0.37

	v2.0 Worker	batch processes for formulation of preparations and articles (multistage and/ or significant contact)	systemic exposure		
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC6	ECETOC TRA v2.0 Worker	Calendering operations	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.40
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Uses in Coatings, industrial.

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
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
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

Technical conditions and measures / Organizational measures

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	: Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	: Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently).

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

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

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 safety goggles (Effectiveness (of a measure): 95 %)

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

Activity : Industrial spraying

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, vapour pressure < 0.5 kPa at STP

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

Technical conditions and measures

Carry out in a vented booth or extracted enclosure. (Effectiveness (of a measure): 50 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 6 hours., Clean equipment and the work area every day., Stay upwind/ keep distance from source.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

Wear suitable coveralls to prevent exposure to the skin., Wear safety goggles (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC7	ECETOC TRA v2.0 Worker	Industrial spraying	Chronic inhalation systemic exposure	0.84 mg/m ³	0.01
			Chronic dermal systemic exposure	75.0 mg/kg bw/day	0.70
			Combined routes		0.71
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07

			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	44.21 mg/m ³	0.74
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.77
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Uses in Coatings, professional.

- Main User Groups : **SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- 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)
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
PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC15: Use as laboratory reagent
PROC19: Hand-mixing with intimate contact and only PPE available
- Environmental Release Categories : **ERC8a, ERC8c, ERC8d, ERC8f:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix

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

Technical conditions and measures / Organizational measures

- Remarks : As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

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

- Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

differently).

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE: (Effectiveness (of a measure): 90 %)

Wear respiratory protection. (Effectiveness (of a measure): 80 %)

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

Activity : Non industrial spraying

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

(Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 3 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,

Wear safety goggles (Effectiveness (of a measure): 90 %)

Wear suitable coveralls to prevent exposure to the skin. (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

2.13 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

Activity : Production of preparations or articles by tableting, compression, extrusion, pelletisation

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

2.15 Contributing scenario controlling worker exposure for: PROC19: Hand-mixing with intimate contact and only PPE available

Activity : Hand-mixing with intimate contact and only PPE available

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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use
 Remarks : Covers daily exposures up to 8 hours (unless stated differently).

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 15 minutes.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
 Wear safety goggles (Effectiveness (of a measure): 90 %)

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker		Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74

			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.01
			Combined routes		0.75
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.50
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.40
PROC11	ECETOC TRA v2.0 Worker	Non industrial spraying	Chronic inhalation systemic exposure	4.14 mg/m ³	0.07
			Chronic dermal systemic exposure	64.70 mg/kg bw/day	0.60
			Combined routes		0.67
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75
PROC14	ECETOC TRA v2.0 Worker	Production of preparations or articles by tableting, compression, extrusion, pelletisation	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74

			Chronic dermal systemic exposure	3.43 mg/kg bw/day	0.03
			Combined routes		0.77
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37
PROC19	ECETOC TRA v2.0 Worker	Hand-mixing with intimate contact and only PPE available	Chronic inhalation systemic exposure	11.05 mg/m ³	0.18
			Chronic dermal systemic exposure	14.14 mg/kg bw/day	0.13
					0.31

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Uses in Coatings, consumer.

Main User Groups	:	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	:	PC9a: Coatings and paints, thinners, paint removers PC15: Non-metal-surface treatment products PC18: Ink and toners PC23: Leather tanning, dye, finishing, impregnation and care products PC31: Polishes and wax blends PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Environmental Release Categories	:	ERC8d: Wide dispersive outdoor use of processing aids in open systems

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

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers

Activity	:	Waterborne latex wall paint
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 10%.
Physical Form (at time of use)	:	Liquid, vapour pressure < 10 Pa

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Measures and conditions for protection of consumer

Covers use at ambient temperatures.	:	
Covers use under typical household ventilation.	:	
For each use event, avoid using a product amount greater than	:	1250

(grammes):
For each use, avoid using for more : 2.2
than (hours):
Avoid using product more than : 1
(times/yr):
Avoid skin contact area greater : 1900
than (cm²):
Avoid using in room size less than : 20
(m³):

2.3 Contributing scenario controlling consumer exposure for: PC9a: Coatings and paints, thinners, paint removers

Activity : Aerosol spray can

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 10%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

Covers use at ambient temperatures.
For each use, avoid using for more than (hours): : 0.25
Covers use under typical household ventilation.
Avoid using product more than (times/yr): : 2
Avoid skin contact area greater than (cm²): : 1900
Avoid using in room size less than (m³): : 34

2.4 Contributing scenario controlling consumer exposure for: PC15: Non-metal-surface treatment products

Activity : Waterborne latex wall paint

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 10%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

Covers use at ambient temperatures. :
Covers use under typical household ventilation. :
For each use event, avoid using a product amount greater than (grammes): : 1250
For each use, avoid using for more than (hours): : 2.2
Avoid using product more than (times/yr): : 1
Avoid skin contact area greater than (cm²): : 1900
Avoid using in room size less than (m³): : 20

2.5 Contributing scenario controlling consumer exposure for: PC15: Non-metal-surface treatment products

Activity : Aerosol spray can

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 10%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

Covers use at ambient temperatures. :
Covers use under typical household ventilation. :
For each use, avoid using for more than (hours): : 0.25
Avoid using product more than (times/yr): : 2
Avoid skin contact area greater : 1900

than (cm²):
Avoid using in room size less than : 34
(m³):

2.6 Contributing scenario controlling consumer exposure for: PC18: Ink and toners

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 10%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

Covers use at ambient temperatures. :
Covers use under typical household ventilation. :
For each use event, avoid using a product amount greater than (grammes): : 16
For each use, avoid using for more than (hours): : 10
Avoid using product more than (times/yr): : 365
Avoid using in room size less than (m³): : 25

2.7 Contributing scenario controlling consumer exposure for: PC31: Polishes and wax blends

Activity : Polishes, wax / cream (floor, furniture, shoes)

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 10%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

Covers use at ambient :
temperatures.
Covers use under typical :
household ventilation.
For each use event, avoid using a : 550
product amount greater than
(grammes):
For each use, avoid using for more : 4
than (hours):
Avoid using product more than : 1
(times/yr):
Avoid skin contact area greater : 430
than (cm²):
Avoid using in room size less than : 58
(m³):

3. Exposure estimation and reference to its source

Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PC9a	ConsExpo v4.1	Waterborne latex wall paint	Chronic inhalation local exposure	0.09 mg/m ³	0.008
			Chronic dermal systemic exposure	5.54 mg/kg bw/day	0.10
			Combined routes		0.11
PC9a	ConsExpo v4.1	Aerosol spray can	Chronic inhalation local exposure	0.09 mg/m ³	0.008
			Chronic dermal systemic exposure	5.54 mg/kg bw/day	0.10
			Combined routes		0.11
PC15	ConsExpo v4.1	Waterborne latex wall paint	Chronic inhalation local exposure	0.09 mg/m ³	0.008
			Chronic dermal systemic exposure	5.54 mg/kg bw/day	0.10
			Combined routes		0.11
PC15	ConsExpo v4.1	Aerosol spray can	Chronic inhalation local exposure	0.09 mg/m ³	0.008
			Chronic dermal systemic exposure	5.54 mg/kg bw/day	0.10
			Combined routes		0.11
PC18	ConsExpo v4.1		Chronic inhalation local exposure	0.09 mg/m ³	0.008
			Chronic dermal systemic exposure	5.54 mg/kg bw/day	0.10
			Combined routes		0.11
PC31	ConsExpo v4.1	Polishes, wax / cream	Chronic inhalation	0.09 mg/m ³	0.008

		(floor, furniture, shoes)	local exposure		
			Chronic dermal systemic exposure	5.54 mg/kg bw/day	0.10
			Combined routes		0.11

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use in Cleaning Agents, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
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 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
Environmental Release Categories	:	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Industrial spraying

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Carry out in a vented booth provided with laminar airflow. (Effectiveness (of a measure): 50 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 6 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear suitable coveralls to prevent exposure to the skin., Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, 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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,

Wear safety goggles (Effectiveness (of a measure): 90 %)

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC7	ECETOC TRA v2.0 Worker	Industrial spraying	Chronic inhalation systemic exposure	0.84 mg/m ³	0.01
			Chronic dermal systemic exposure	75.0 mg/kg bw/day	0.70
			Combined routes		0.71
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA	Transfer of substance	Chronic inhalation	22.11 mg/m ³	0.37

	v2.0 Worker	or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	systemic exposure		
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.77
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use in Cleaning Agents, professional.

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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 PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

Technical conditions and measures / Organizational measures

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	: Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	: Covers daily exposures up to 8 hours (unless stated differently).
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Conditions and measures related to personal protection, hygiene and health evaluation

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : Non industrial spraying

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide enhanced general ventilation by mechanical means.

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 2 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear suitable coveralls to prevent exposure to the skin., Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear suitable gloves tested to EN374., Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.50
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74

			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.40
PROC11	ECETOC TRA v2.0 Worker	Non industrial spraying	Chronic inhalation systemic exposure	4.14 mg/m ³	0.07
			Chronic dermal systemic exposure	64.70 mg/kg bw/day	0.60
			Combined routes		0.67
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Lubricants, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)</p> <p>PROC7: Industrial spraying</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC17: Lubrication at high energy conditions and in partly open process</p> <p>PROC18: Greasing at high energy conditions</p>
Environmental Release Categories	:	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at STP
Frequency and duration of use
Remarks : Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Other operational conditions affecting workers exposure

Remarks : Not applicable

Organisational measures to prevent /limit releases, dispersion and exposure

Not applicable

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 safety goggles

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

Activity : Industrial spraying

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, vapour pressure < 0.5 kPa at STP

Technical conditions and measures

Carry out in a vented booth or extracted enclosure. (Effectiveness (of a measure): 50 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 6 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,

Wear suitable coveralls to prevent exposure to the skin., Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to

Mixture/Article : 100 % (unless stated differently).

Physical Form (at time of use) : Liquid, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : Lubrication at high energy conditions and in partly open process

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : Greasing at high energy conditions

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA	Use in closed,	Chronic inhalation	4.42 mg/m ³	0.07

	v2.0 Worker	continuous process with occasional controlled exposure	systemic exposure		
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)			
PROC7	ECETOC TRA v2.0 Worker	Industrial spraying	Chronic inhalation systemic exposure	0.84 mg/m ³	0.01
			Chronic dermal systemic exposure	75.0 mg/kg bw/day	0.70
			Combined routes		0.71
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43

PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	44.21 mg/m ³	0.74
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.77
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75
PROC17	ECETOC TRA v2.0 Worker	Lubrication at high energy conditions and in partly open process	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.10
PROC18	ECETOC TRA v2.0 Worker	Greasing at high energy conditions	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Metal working fluids / rolling oils, industrial.

- Main User Groups : **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
- 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
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process
- Environmental Release Categories : **ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles**Technical conditions and measures / Organizational measures**

- Remarks : As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

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

- Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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 safety goggles (Effectiveness (of a measure): 95 %)

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

Activity : Industrial spraying

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Carry out in a vented booth or extracted enclosure. (Effectiveness (of a measure): 50 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 6 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear suitable coveralls to prevent exposure to the skin., Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : Lubrication at high energy conditions and in partly open process

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:., Wear respiratory protection. (Effectiveness (of a measure): 90 %)

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43

PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC7	ECETOC TRA v2.0 Worker	Industrial spraying	Chronic inhalation systemic exposure	0.84 mg/m ³	0.01
			Chronic dermal systemic exposure	75.0 mg/kg bw/day	0.70
			Combined routes		0.71
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	44.21 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal	1.37 mg/kg	0.01

			systemic exposure	bw/day	
			Combined routes		0.75
PROC17	ECETOC TRA v2.0 Worker	Lubrication at high energy conditions and in partly open process	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.10

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Metal working fluids / rolling oils, professional.

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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) 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 PROC17: Lubrication at high energy conditions and in partly open process
Environmental Release Categories	: ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a: Wide dispersive indoor use of processing aids in open systems**Technical conditions and measures / Organizational measures**

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: Use in closed process, no likelihood of exposure
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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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use	
Remarks	: Covers daily exposures up to 8 hours (unless stated

differently).

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE: (Effectiveness (of a measure): 90 %)

Wear respiratory protection. (Effectiveness (of a measure): 80 %)

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

Activity : Non industrial spraying

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide enhanced general ventilation by mechanical means.

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 3 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,

Wear safety goggles (Effectiveness (of a measure): 90 %)

Wear suitable coveralls to prevent exposure to the skin. (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,

Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : Lubrication at high energy conditions and in partly open process

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE: (Effectiveness (of a measure): 90 %)
Wear respiratory protection. (Effectiveness (of a measure): 80 %)

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.01
			Combined routes		0.75
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37

			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.50
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.40
PROC11	ECETOC TRA v2.0 Worker	Non industrial spraying	Chronic inhalation systemic exposure	4.14 mg/m ³	0.07
			Chronic dermal systemic exposure	64.70 mg/kg bw/day	0.60
			Combined routes		0.67
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75
PROC17	ECETOC TRA v2.0 Worker	Lubrication at high energy conditions and in partly open process	Chronic inhalation systemic exposure	22.10 mg/m ³	0.34
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Functional Fluids, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p>
Environmental Release Categories	:	ERC7: Industrial use of substances in closed systems

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP
Frequency and duration of use
 Remarks : Covers daily exposures up to 8 hours (unless stated differently).

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13

PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Combined routes		0.20
			Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Functional Fluids, professional.

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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 PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	: ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC9b: Wide dispersive outdoor use of substances in closed systems**Technical conditions and measures / Organizational measures**

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	: Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	: Covers daily exposures up to 8 hours (unless stated differently).
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Conditions and measures related to personal protection, hygiene and health evaluation

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 80 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 80 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

2.8 Contributing scenario controlling worker exposure for: PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Activity : Heat and pressure transfer fluids in dispersive, professional use but closed systems

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal	0.34 mg/kg	0.0032

			systemic exposure	bw/day	
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC3			Chronic inhalation systemic exposure	44.22	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.50
PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.80
PROC20	ECETOC TRA v2.0 Worker	Heat and pressure transfer fluids in dispersive, professional use but closed systems	Chronic inhalation systemic exposure	22.10 mg/m ³	0.50
			Chronic dermal systemic exposure	1.71 mg/kg bw/day	0.03
			Combined routes		0.53

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use in heat transfer and hydraulic fluids, consumer.

Main User Groups	:	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	:	PC16: Heat transfer fluids PC17: Hydraulic fluids
Process categories	:	PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
Environmental Release Categories	:	ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC9b: Wide dispersive outdoor use of substances in closed systems**Amount used**

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling consumer exposure for: PC16: Heat transfer fluids**Product characteristics**

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 45%.
Physical Form (at time of use)	:	Liquid, vapour pressure < 10 Pa

Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Measures and conditions for protection of consumer

Covers exposure up to (hours/event):	:	0.25
Covers skin contact area up to (cm ²):	:	960
Covers use under typical household ventilation.	:	
Covers use at ambient temperatures.	:	

2.3 Contributing scenario controlling consumer exposure for: PC17: Hydraulic fluids**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 45%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

Covers exposure up to (hours/event) : 0.25

No specific risk management measure identified beyond those operational conditions stated.

Covers skin contact area up to (cm²): : 960

Covers use under typical household ventilation. :

Covers use at ambient temperatures. :

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

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PC16	ECETOC TRA v2.0 Worker; modified version		Chronic inhalation local exposure	4.97 mg/m ³	0.41
			Chronic dermal systemic exposure	6.17 mg/kg bw/day	0.12
			Combined routes		0.53
PC17	ECETOC TRA v2.0 Worker; modified version		Chronic inhalation local exposure	4.97 mg/m ³	0.41
			Chronic dermal systemic exposure	6.17 mg/kg bw/day	0.12
			Combined routes		0.53

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use in laboratories, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	:	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	:	PROC15: Use as laboratory reagent
Environmental Release Categories	:	ERC8a: Wide dispersive indoor use of processing aids in open systems

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROCs (all): General measures applicable to all activities

Activity	:	General measures applicable to all activities
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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2.3 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Activity	:	Use as laboratory reagent
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure < 0.5 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Conditions and measures related to personal protection, hygiene and health evaluation

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use in laboratories, professional.

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

Process categories : **PROC15:** Use as laboratory reagent

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

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

Technical conditions and measures / Organizational measures

Remarks : As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROCs (all): General measures applicable to all activities

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.10 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Use in adhesives and sealants, consumer.

Main User Groups : **SU 21:** Consumer uses: Private households (= general public = consumers)
 Chemical product category : **PC1:** Adhesives, sealants
 Environmental Release Categories : **ERC8c:** Wide dispersive indoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix**Amount used**

Remarks : As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

Activity : Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 0.075%.

Physical Form (at time of use) : Liquid, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

For each use event, covers use amounts up to (grammes) : 9000
 Covers use up to (times/day) : 1
 Covers use up to (times/year) : 0.25
 Covers skin contact area up to (cm²): 110
 Covers use under typical household ventilation. :
 Covers use in room size of (m³): 58
 Covers exposure up to (hours/event): 1.25
 Covers use at ambient temperatures. :

3. Exposure estimation and reference to its source

Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PC1	ConsExpo v4.1		Chronic inhalation local exposure	0.31 mg/m ³	0.06
			Chronic dermal systemic exposure	0.26 mg/kg bw/day	0.005
			Combined routes		0.07

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Production of polymers, filled polymers, foams, coatings, adhesives and sealants, industrial.

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
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 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 PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	: ERC2, ERC3, ERC5, ERC6c: Formulation of preparations, Formulation in materials, Industrial use resulting in inclusion into or onto a matrix, Industrial use of monomers for manufacture of thermoplastics

2.1 Contributing scenario controlling environmental exposure for: ERC6c: Industrial use of monomers for manufacture of thermoplastics

Technical conditions and measures / Organizational measures

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: Use in closed process, no likelihood of exposure
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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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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)

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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 safety goggles (Effectiveness (of a measure): 95 %)

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

Activity : Industrial spraying

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Carry out in a vented booth provided with laminar airflow. (Effectiveness (of a measure): 50 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 6 hours., Stay upwind/ keep distance from source., Clean equipment and the work area every day.

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear suitable coveralls to prevent exposure to the skin., Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles, If above technical/organisational control measures are not feasible, then adopt following PPE:, Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Roller application or brushing

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.,
Wear safety goggles (Effectiveness (of a measure): 90 %)

2.13 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

Activity : Production of preparations or articles by tableting, compression, extrusion, pelletisation

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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.04 mg/m ³	0.0007
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.0032
			Combined routes		0.004
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07

			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.08
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.22
PROC3	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC5	ECETOC TRA v2.0 Worker	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.38
PROC7	ECETOC TRA v2.0 Worker	Industrial spraying	Chronic inhalation systemic exposure	0.84 mg/m ³	0.01
			Chronic dermal systemic exposure	75.0 mg/kg bw/day	0.70
			Combined routes		0.71
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.20
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43

PROC9	ECETOC TRA v2.0 Worker	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.43
PROC10	ECETOC TRA v2.0 Worker	Roller application or brushing	Chronic inhalation systemic exposure	44.21 mg/m ³	0.74
			Chronic dermal systemic exposure	2.74 mg/kg bw/day	0.03
			Combined routes		0.77
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.22 mg/m ³	0.74
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01
			Combined routes		0.75
PROC15	ECETOC TRA v2.0 Worker	Production of preparations or articles by tableting, compression, extrusion, pelletisation	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.03
			Combined routes		0.40
PROC15	ECETOC TRA v2.0 Worker	Use as laboratory reagent	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	0.34 mg/kg bw/day	0.003
			Combined routes		0.37

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Production of rigid foam, consumer.

Main User Groups : **SU 21:** Consumer uses: Private households (= general public = consumers)
Chemical product category : **PC32:** Polymer preparations and compounds
Environmental Release Categories : **ERC8c, ERC8f:** Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Amount used

Remarks : As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling consumer exposure for: PC32: Polymer preparations and compounds

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, vapour pressure < 10 Pa

Frequency and duration of use

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

Measures and conditions for protection of consumer

For each use event, covers use amounts up to (grammes) : 825
Covers exposure up to (hours/event): : 0.5
Covers use up to (times/year): : 0.21
Covers skin contact area up to (cm²): : 1900
Covers use at ambient temperatures. :
Covers use under typical household ventilation. :
Covers use in room size of (m³): : 57.5

3. Exposure estimation and reference to its source

Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PC32	ConsExpo v4.1		Chronic inhalation local exposure	0.07 mg/m ³	0.006
			Chronic dermal systemic exposure	0.19 mg/kg bw/day	0.004
			Combined routes		0.01

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: Water treatment chemicals, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC13: Treatment of articles by dipping and pouring</p>
Environmental Release Categories	:	ERC3, ERC4: Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC3: Formulation in materials

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure < 0.5 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Pouring from small containers

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.
(Effectiveness (of a measure): 90 %)
Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.044217 mg/m ³	0.000737
			Chronic dermal systemic exposure	0.342857 mg/kg bw/day	0.003235
			Combined routes		0.003971
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	4.422 mg/m ³	0.073695
			Chronic dermal systemic exposure	1.371 mg/kg bw/day	0.012938
			Combined routes		0.086633
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.265 mg/m ³	0.221084
			Chronic dermal systemic exposure	0.342857 mg/kg bw/day	0.003235
			Combined routes		0.224319
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	22.108 mg/m ³	0.368474
			Chronic dermal systemic exposure	6.857 mg/kg bw/day	0.06469
			Combined routes		0.433164
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation	Chronic inhalation systemic exposure	4.422 mg/m ³	0.073695

		(charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities			
			Chronic dermal systemic exposure	13.714 mg/kg bw/day	0.12938
			Combined routes		0.203075
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	22.108 mg/m ³	0.368474
			Chronic dermal systemic exposure	6.857 mg/kg bw/day	0.06469
			Combined routes		0.433164
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.217 mg/m ³	0.736947
			Chronic dermal systemic exposure	13.714 mg/kg bw/day	0.12938
			Combined routes		0.866327

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Predicted exposures are not expected to exceed the DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

1. Short title of Exposure Scenario: Water treatment chemicals, professional.

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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
Environmental Release Categories	: ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix**Technical conditions and measures / Organizational measures**

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	: Liquid, vapour pressure 0.5 - 10 kPa at STP
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Frequency and duration of use

Remarks	: Covers daily exposures up to 8 hours (unless stated differently).
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Technical conditions and measures

Handle substance within a closed system.

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

Wear safety goggles

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

Activity : 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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Equipment maintenance

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur (Effectiveness (of a measure): 90 %)

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

Wear safety goggles

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear respiratory protection. (Effectiveness (of a measure): 90 %)

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

Activity : 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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : 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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

(Effectiveness (of a measure): 90 %)

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v2.0 Worker	Use in closed process, no likelihood of exposure	Chronic inhalation systemic exposure	0.044217 mg/m ³	0.000737
			Chronic dermal systemic exposure	0.342857 mg/kg bw/day	0.003235
			Combined routes		0.003971
PROC2	ECETOC TRA v2.0 Worker	Use in closed, continuous process with occasional controlled exposure	Chronic inhalation systemic exposure	22.108 mg/m ³	0.368474
			Chronic dermal systemic exposure	1.371 mg/kg bw/day	0.012938
			Combined routes		0.381412
PROC3	ECETOC TRA v2.0 Worker	Use in closed batch process (synthesis or formulation)	Chronic inhalation systemic exposure	13.265 mg/m ³	0.221084
			Chronic dermal systemic exposure	0.342857 mg/kg bw/day	0.003235
			Combined routes		0.224319
PROC4	ECETOC TRA v2.0 Worker	Use in batch and other process (synthesis) where opportunity for exposure arises	Chronic inhalation systemic exposure	44.217 mg/m ³	0.736947
			Chronic dermal systemic exposure	6.857 mg/kg bw/day	0.06469
			Combined routes		0.801637
PROC8a	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to	Chronic inhalation systemic exposure	22.108 mg/m ³	0.368474

		vessels/ large containers at non-dedicated facilities			
			Chronic dermal systemic exposure	13.714 mg/kg bw/day	0.12938
			Combined routes		0.497854
PROC8b	ECETOC TRA v2.0 Worker	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	Chronic inhalation systemic exposure	44.217 mg/m ³	0.736947
			Chronic dermal systemic exposure	6.857 mg/kg bw/day	0.06469
			Combined routes		0.801637
PROC13	ECETOC TRA v2.0 Worker	Treatment of articles by dipping and pouring	Chronic inhalation systemic exposure	44.217 mg/m ³	0.736947
			Chronic dermal systemic exposure	13.714 mg/kg bw/day	0.12938
			Combined routes		0.866327

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Predicted exposures are not expected to exceed the DNEL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

1. Short title of Exposure Scenario: Use in Oil and Gas field drilling and production operations, industrial.

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	:	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p>
Environmental Release Categories	:	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

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

Technical conditions and measures / Organizational measures

Remarks	:	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	:	General exposures (closed systems) Storage
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Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use)	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
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Frequency and duration of use

Remarks	:	Covers daily exposures up to 8 hours (unless stated differently).
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Conditions and measures related to personal protection, hygiene and health evaluation

Wear safety goggles

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

Activity : Storage

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Drilling mud (re-)formulation
Use in contained batch processes
Treatment and disposal of filtered solids
Process sampling

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : General exposures (open systems)
Drill floor operations
Outdoor

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

differently).

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

Wear safety goggles

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

Activity : Operation of solids filtering equipment
elevated temperature
Indoor

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

Technical conditions and measures

Provide extract ventilation to points where emissions occur

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

Wear safety goggles

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

Activity : Pouring from small containers
Non-dedicated facility
Equipment cleaning and maintenance

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 4 hours.

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

Wear safety goggles

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

Activity : Bulk transfers
Dedicated facility
Filling/ preparation of equipment from drums or containers.

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

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

Activity : Transfer from/pouring from containers
Dedicated facility

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, vapour pressure 0.5 - 10 kPa at STP

Frequency and duration of use

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

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

Wear safety goggles

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	RCR
PROC1	ECETOC TRA v3.0 Worker	General exposures (closed systems), Storage	Chronic inhalation systemic exposure	0.04 mg/m ³	< 0.01
			Chronic dermal systemic exposure	0.03 mg/kg bw/day	< 0.01
			Combined routes		< 0.01
PROC2	ECETOC TRA v2.0 Worker	Storage	Chronic inhalation systemic exposure	4.42 mg/m ³	0.07
			Chronic dermal systemic exposure	1.37 mg/kg bw/day	0.01

			Combined routes		0.09
PROC3	ECETOC TRA v2.0 Worker	Treatment and disposal of filtered solids, Drilling mud (re-)formulation, Use in contained batch processes, Process sampling	Chronic inhalation systemic exposure	13.27 mg/m ³	0.22
			Chronic dermal systemic exposure	0.69 mg/kg bw/day	0.01
			Combined routes		0.23
PROC4	ECETOC TRA v2.0 Worker	Drill floor operations, General exposures (open systems), Outdoor	Chronic inhalation systemic exposure	15.48 mg/m ³	0.2
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.32
PROC4	ECETOC TRA v3.0 Worker	Operation of solids filtering equipment, elevated temperature, Indoor	Chronic inhalation systemic exposure	8.84 mg/m ³	0.15
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
			Combined routes		0.21
PROC8a	ECETOC TRA v3.0 Worker	Pouring from small containers, Non-dedicated facility, Equipment cleaning and maintenance	Chronic inhalation systemic exposure	26.53 mg/m ³	0.44
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.57
PROC8b	ECETOC TRA v3.0 Worker	Bulk transfers, Dedicated facility, Filling/ preparation of equipment from drums or containers.	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	13.71 mg/kg bw/day	0.13
			Combined routes		0.50
PROC9	ECETOC TRA v3.0 Worker	Transfer from/pouring from containers, Dedicated facility	Chronic inhalation systemic exposure	22.11 mg/m ³	0.37
			Chronic dermal systemic exposure	6.86 mg/kg bw/day	0.06
					0.43

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

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.