

METHOXY PROPANOL

Code : 14984

Responsible for distribution:

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Belgium:
Antipoison Center - Brussels :
TEL: 070/245.245

The Netherlands:
National Poisoning Information Center - Bilthoven :
TEL: 030/274.88.88

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

- * Chemical description : 1-Methoxy 2-propanol , Propyleneglycolmonomethylether , PGME.
- Type of product : Pure product .
- * Reach registration number : 01-2119457435-35

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

- * Identified use(s) : At this time we do not yet have information on identified uses. They will be included when available.
- * Use(s) advised against : At this time we do not yet have information on uses advised against. They will be included when available.

1.3. Details of the supplier of the safety data sheet

Company identification : See heading of Material Safety Data Sheet.

1.4. Emergency telephone number

Emergency phone number : See heading of Material Safety Data Sheet.

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC

- * Flammable (-; R10)
- Other (-; R67)

Classification according to Regulation (EC) No 1272/2008

- * Flammable liquids - Category 3 - Warning (Flam. Liq. 3; H226)
- Specific Target Organ Toxicity - Single exposure - Narcotic effects - Category 3 - Warning (STOT SE 3; H336)

2.2. Label elements

Label in accordance with Regulation (EC) No 1272/2008

- * • Dangerous ingredient(s) : 1-Methoxy 2-propanol
- * • Hazard pictogram(s)



- * • Signal word : Warning
- * • Hazard statements : H226 - Flammable liquid and vapour. H336 - May cause drowsiness or dizziness.
- * • Precautionary statements
- * - Prevention : P210 - Keep away from heat, sparks, open flames or hot surfaces. – No smoking.
P240 - Ground/bond container and receiving equipment.

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2. Hazards identification (continued)

- * - Response : P312 - Call a POISON CENTER or doctor if you feel unwell. P370+P378 - In case of fire : Use extinguishing powder, alcohol resistant foam, carbon dioxide or water spary for extinction.
- * - Storage : P233 - Keep container tightly closed. P403+P235 - Store in well-ventilated place. Keep cool.
- * - Disposal considerations : P501 - Dispose of this material and its container to hazardous or special waste collection point.

2.3. Other hazards

- * Physical/chemical hazards : May form peroxides.
- * Hazards for the health : A health dangerous concentration in the air will rahter slowly be reached by evaporation of this substance at app. 20°C; by spraying much faster.
- * Hazards for the environment : No significant danger. This product is no substance or contains no PBT or vPvB (in accordance with Annex XIII).
- * Hazards for the safety : At or above flash point, available vapours may burn in open or explode if confined when mixed with air and exposed to ignition source.

3. Composition/information on ingredients

3.1. Substances

| Name component(s) | Weight % | CAS nr | EINECS nr | Index nr | Reach nr | CLASSIFICATION |
|------------------------|------------|-----------|-----------|--------------|------------------|--|
| * 1-Methoxy 2-propanol | : > 99.5 % | 107-98-2 | 203-539-1 | 603-064-00-3 | 01-2119457435-35 | R10 R67 ----- Flam. Liq. 3; H226 STOT SE 3; H336 |
| * 2-Methoxy-1-propanol | : < 0.5 % | 1589-47-5 | 216-455-5 | 603-106-00-0 | ----- | R10 T; R61 Xi; R37/38-41 ----- Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 Repr. 1B; H360D |

* The full text of the R-phrases and (EU)H-statements is in section 16.

4. First aid measures

4.1. Description of first aid measures

General : In case of doubt or persistent symptoms, call a physician.
Never give anything by mouth to an unconscious person.

First Aid Measures

- * - Inhalation : Remove victim into fresh air.
Allow the affected person to rest.
If not breathing, give artificial respiration.
Consult doctor or take patient to hospital immediately.
- Skin Contact : Remove contaminated clothing.
Rinse skin immediately with mild soap and plenty of water. (shower if necessary).
Consult doctor if irritation develops.

METHOXY PROPANOL**Code : 14984****4. First aid measures (continued)**

- Eye Contact : Rinse immediately thoroughly and long (at least 15 min.) with plenty of water. Remove contact lenses. Consult eye doctor.
- * - Ingestion : DO NOT INDUCE VOMITING. Rinse mouth with water. Give 2 glasses of water to drink. Seek medical attention immediately or take to hospital.

4.2. Most important symptoms and effects, both acute and delayed

- * See section 11.

4.3. Indication of any immediate medical attention and special treatment needed

- * For specialist advice doctors should contact the NVCI or the Belgian Poison center.

5. Firefighting measures**5.1. Extinguishing media**

Extinguishing Media

- * - Suitable : Extinguishing powder , Alcohol resistant foam . Carbon dioxide (CO2) , Water spray .
- Insuitable : Heavy water stream .

5.2. Special hazards arising from the substance or mixture

Special Exposure Hazards : Fire may liberate carbon oxides (CO) and smoke.

5.3. Advice for firefighters

- * Special Protective Equipment for Firefighters : Use self-contained breathing apparatus and wear protective clothes when in close proximity to fire.
- Special Procedures : Apply water spray or fog to cool nearby equipment. Avoid fire-fighting water to enter environment.

6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Personal Precautions : Eliminate every possible source of ignition (open fire, sparks, smoking, ...). Evacuate all personnel immediately and ventilate area. Avoid breathing vapour and contact with skin, eyes and clothing. Wear recommended personal protective equipment. (See section 8)

6.2. Environmental precautions

Environmental Precautions : Shut off leaks if without risks. Dike in the spilled product as much as possible with inert material. Prevent entry of product in public water, sewers or soil. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for Cleaning Up : Collect the spillage in closable, suitable disposal containers. Clean up any spills as soon as possible, using an inert absorbent material. Residue is to be washed down with plenty of water.

6.4. Reference to other sections

- * For personal protection, see section 8.
- For the removal of the waste product, see section 13.

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7. Handling and storage

7.1. Precautions for safe handling

- * Handling : SKIN ABSORPTION ! AVOID FOG TRANSFORMATION !
Avoid breathing vapour and contact with skin, eyes and clothing. Wear recommended personal protective equipment. (See section 8)
Before distillation: check if peroxides exist.
When using, do not eat, drink or smoke.
Wash hands before and after working with the product.
Emergency eye wash fountains and showers should be available in the immediate vicinity of any potential exposure.

7.2. Conditions for safe storage, including any incompatibilities

- * Storage : Keep only in the original, safely locked container in a well ventilated, cool and dark place.
All dangerous products should be placed on a drip tray or should be barreled.
Keep away from : Strong oxidizing agents , Acids , Bases .
Stabilizer : Butylhydroxytoluene (BHT).
- * Protection against Fire and Explosion : Remove all sources of ignition (open fire, sparks, smoking, ...).
With a temperature equal to or higher than the flash point, the mixture steam-air may create a highly flammable and explosive mixture.
Do not use compressed air to either agitate or transfer contents of storage containers (tanks) / shipping drums containing this material.
Take measures against electrostatic discharges.
Use explosionproof equipment.
Use spark-arm implement.
- * Packaging Material : Stainless steel .
- * Insuitable Packaging Material : Aluminium , Several synthetics .

7.3. Specific end use(s)

- * For identified uses, see subsection 1.2 and/or exposure scenarios.

8. Exposure controls/personal protection

8.1. Control parameters

- * Occupational Exposure Limits : 1-Methoxy 2-propanol : Limit value (BE) : 100 ppm (375 mg/m³) (2011) (D)
1-Methoxy 2-propanol : Short time value (BE) : 150 ppm (568 mg/m³) (2011) (D)
1-Methoxy 2-propanol : Limit value (TWA 8 h) (NL) : 100 ppm (375 mg/m³) (2007) (H)
1-Methoxy 2-propanol : Limit value (TWA 15 min) (NL) : 150 ppm (563 mg/m³) (2007) (H)
(D) The mention "D" means that the absorption of the agent by skin, mucous membranes or eyes constitutes an important part of the total exposition. This absorption can be the consequence of direct contact as well as his presence in the air.
(H) The addition of an "H" indicates that the substance is relative easily absorbed by the skin.
- * Biological limit values : They will be included when available.
- * DNELs : • 1-Methoxy 2-propanol : Worker, acute - local effects, inhalation : 553,5 mg/m³
• 1-Methoxy 2-propanol : Worker, long-term - systemic effects, inhalation : 369 mg/m³
• 1-Methoxy 2-propanol : Worker, long-term - systemic effects, dermal : 50,6 mg/kg
• 1-Methoxy 2-propanol : Consumer, long-term - systemic effects, inhalation : 43,9 mg/m³
• 1-Methoxy 2-propanol : Consumer, long-term - systemic effects, dermal : 18,1 mg/kg
• 1-Methoxy 2-propanol : Consumer, long-term - systemic effects, oral : 3,3 mg/kg

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8. Exposure controls/personal protection (continued)

- * PNECs : • 1-Methoxy 2-propanol : Fresh water : 10 mg/l
 • 1-Methoxy 2-propanol : Fresh water sediment : 41,6 mg/kg
 • 1-Methoxy 2-propanol : Marine water sediment : 4,17 mg/kg
 • 1-Methoxy 2-propanol : Soil : 2,47 mg/kg
 • 1-Methoxy 2-propanol : Sewage treatment plant : 100 mg/l

8.2. Exposure controls

- * Engineering Measures : Ventilation , Local exhaust .
- Personal Protection Equipment
- * - Respiratory protection : CE-approved mask for organic vapours and solvents (type A, brown).
- Skin protection : Suitable protective clothing .
- * - Hand protection : Suitable material for safety gloves (EN 374):
Butyl rubber , Natural rubber .
- Eye/Face protection : Closed safety glasses or face shield.
- * Environmental exposure controls : See sections 6, 7, 12 en 13.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical State (20°C) : Liquid .
- Form/Colour : Clear , Colourless .
- Odour : Ether-like odour .
- * Odour threshold : No data available.
- pH value : Not applicable.
- Melting/Freezing point : -95 °C
- Boiling Point/Range (1013 hPa) : 120 °C
- * Flash point : 30 °C
- Fire hazard : P2
- * Evaporation rate : 0,75 (Butyl acetate = 1)
- * Explosion limits in air : 1,9-13,1 vol.%
- * Vapour pressure (20°C) : 1,17 kPa
- * Relative vapour density (air=1) : 3,1
- Relative density of saturated vapour/air mixture (air=1) : 1,02
- * Density (20°C) : 0,92 kg/l
- * Solubility in water (20°C) : 200 g/100ml
- * Log P Octanol/Water (20°C) : -0,4 (calculated)
- * Auto-ignition temperature : 270-290 °C
- * Minimum ignition energy : No data available.
- * Decomposition temperature : No data available.
- * Viscosity (20°C) : 1,9 mPa.s (Dynamic)
2,0 mm²/s (Kinematic)
- * Explosive properties : No chemical groups associated with explosive properties .
- * Oxidizing properties : No chemical groups associated with oxidizing properties .

9.2. Other information

- * Surface tension (20°C) : 70,7 N/m

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9. Physical and chemical properties (continued)

- * % Volatiles (by weight) : > 99,5
- Saturation concentration : 44 g/m³

10. Stability and reactivity

10.1. Reactivity

- * Reactivity : Reacts violently with: Strong oxidizing agents , Acids , Bases .

10.2. Chemical stability

- * Stability : May form peroxides.
Stable at normal circumstances (with Stabilizer).

10.3. Possibility of hazardous reactions

- * Hazardous reactions : None under normal conditions .

10.4. Conditions to avoid

- Conditions to avoid : High temperatures .

10.5. Incompatible materials

- * Materials to avoid : Strong oxidizing agents , Acids , Bases , Aluminium , Several synthetics .

10.6. Hazardous decomposition products

- Hazardous Decomposition Products : Fire may liberate carbon oxides (CO) and smoke.

11. Toxicological information

11.1. Information on toxicological effects

- Acute toxicity
- * - Inhalation : May cause irritation of respiratory tract.
High concentrations may produce central nervous system depression and loss of consciousness (diminuation of consciousness).
Symptoms include: Cough , Dizziness , Drowsiness , Sore throat , Unconsciousness .
• 1-Methoxy 2-propanol : LC50 (Rat, inhalation, 6 h) : 27596 mg/l
- * - Skin contact : May be slightly irritating for the skin.
Symptoms include: Redness .
• 1-Methoxy 2-propanol : LD50 (Rabbit, dermal) : 2000 mg/kg
- Eye contact : May be slightly irritating to eyes.
Symptoms include: Redness , Pain .
- * - Ingestion : Symptoms include: Nausea , Diarrhea , See "Inhalation" .
• 1-Methoxy 2-propanol : LD50 (Rat, oral) : 4016 mg/kg
- * Skin corrosion/irritation : Repeated or prolonged skin contact may cause dermatitis and defatting.
- * Serious eye damage/irritation : May be irritating to eyes.
- * Aspiration hazard : Not considered hazardous.
- * Respiratory or skin sensitisation : Not sensitive .
- * Carcinogenicity : Not listed as carcinogenic .
- * Mutagenicity : Not listed as mutagenic .
- * Reproductive toxicity : Not listed for reproductive toxicity .
- * Specific target organ toxicity - single exposure : To human : Respiratory tract irritation .

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- * Specific target organ toxicity - repeated exposure : To human : Listed not for organ toxicity .
By male rats : Target organ : Kidneys .

12. Ecological information**12.1. Toxicity**

- * Ecotoxicity : • 1-Methoxy 2-propanol : EC50 (Daphnia magna, 48 h) : 23300 mg/l
• 1-Methoxy 2-propanol : LC50 (Fish, 96 h) : 6812 mg/l (Leuciscus idus)

12.2. Persistence and degradability

Persistence and degradability : • 1-Methoxy 2-propanol : Persistence and degradability : Easily biodegradable .

12.3. Bioaccumulative potential

- * Bioaccumulation : • 1-Methoxy 2-propanol : Bioaccumulation : No bioaccumulation .

12.4. Mobility in soil

Mobility : • 1-Methoxy 2-propanol : Mobility : Product completely soluble in water.

12.5. Results of PBT and vPvB assessment

- * Evaluation : • 1-Methoxy 2-propanol : PBT/vPvB : No

12.6. Other adverse effects

- WGK class (DE) : 1 (Weak water pollutant).
Water damaging (NL) : 11
Decontamination exertion (NL) : B
* Photochemical ozone creation potential : No data available.
* Ozone depletion potential : No data available.
* Endocrine disrupting potential : No data available.
* Global warming potential : No data available.

13. Disposal considerations**13.1. Waste treatment methods**

- Waste from residues/Unused products : The product has to be destroyed according to national or local legislation, by a company specialised in handling hazardous waste products.
* European list of waste products : XXXXXX - European waste product code. This code is assigned on the basis of the most current applications and can not be representative for pollutions which are arisen at the effective use of the product. The producer of the waste has to evaluate its process himself and has to grant the appropriate waste coding. See Decision 2001/118/EC.
Removal contaminated packaging : Packing is to be used exclusively for the packing of this product.
After use, empty and close the packing very carefully.
In case of returned packing, the empty packing can be offered back to the supplier.

14. Transport information**14.1. UN number**

UN Number : 3092

14.2. UN proper shipping name

- * ADR Name : UN3092 1-Methoxy 2-propanol, 3, III, (D/E)

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14. Transport information (continued)

- * ADN Name : UN 3092 1-Methoxy 2-propanol , 3, III
- * IMDG Name : UN 3092 1-Methoxy 2-propanol , 3, III, (30°C)

14.3. Transport hazard classe(s)

Class : 3

14.4. Packing group

Packaging Group : III

14.5. Environmental hazards

- * Environmentally hazard : No
- Marine pollutant : No

14.6. Special precautions for user

Danger number : 30
 Hazard Label(s) : 3
 EmS-N° : F-E , S-D

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

- * Type ship : 3
- * Pollution category : Z

15. Regulatory information

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

- Inventories : Australian inventory (AICS): Listed in inventory.
 Canadian inventory (DSL): Listed in inventory.
 Chinese inventory (IECS): Listed in inventory.
 European inventory (EINECS): Listed in inventory.
 Japanese inventory (ENCS): Listed in inventory.
 Korean inventory (KECI): Listed in inventory.
 Philippine inventory (PICCS): Listed in inventory.
 Inventory of the United States (TSCA): Listed in inventory.
- * NFPA n° : 1-3-0
- * Relevant EU Rule(s) : Directive 96/82/EC of the Council of 9 December 1996 on the control of major-accident hazards involving dangerous substances
 Directive 98/24/EC of the Council of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work
 Directive 1999/13/EC of the Council of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations
 Directive 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC
 Decision 2001/118/EC of the Commission of 16 January 2001 amending Decision 2000/532/EC as regards the list of wastes
 Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
 Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (Reach)

METHOXY PROPANOL**Code : 14984****15. Regulatory information (continued)****15.2. Chemical Safety Assessment**

- * A chemical safety assessment has been carried out for the substance(s) that make up this material or for the material itself.

16. Other information

- * This safety data sheet has been drawn up in accordance with Regulation (EU) No 453/2010. This safety data sheet is exclusively made for industrial/professional use.
 - * Has changed compared to previous revision.
- * Changes : General revision .
- * Sources of used key data : The information contained herein is based on the present state of our knowledge (Producer(s) , Chemical cards , ...). See also on the webaddress: <http://apps.echa.europa.eu/registered/registered-sub.aspx#search>
- * R-phrases(s) : R10 - Flammable.
R37/38 - Irritating to respiratory system and skin.
R41 - Risk of serious damage to eyes.
R61 - May cause harm to the unborn child.
R67 - Vapours may cause drowsiness and dizziness.
- * (EU)H-statement(s) : H226 - Flammable liquid and vapour.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness or dizziness.
H360D - May damage the unborn child.
- * List of abbreviations and acronyms : ADN (Accord européen relatif au transport international des marchandises Dangereuses par voie de Navigation interieur) : European agreement concerning the international carriage of dangerous goods by inland waterways
ADR (Accord européen relatif au transport international des marchandises Dangereuses par Route) : European agreement concerning the international carriage of dangerous goods by road
CO : Carbon monoxide
DNEL (Derived No Effect Level) : an estimated safe exposure level
EmS (Emergency Schedule) : the first code refers to the relevant fire schedule and the second code refers to the relevant spillage schedule
IMDG (International Maritime Dangerous Goods code)
NFPA (National Fire Protection Association) or fire diamant
NVC I : National Poisoning Information Center
PBT : persistent, bioaccumulative and toxic
PNEC (Predicted No Effect Concentration) : concentration below which exposure to a substance is not expected to cause adverse effects
REACH : Registration, Evaluation, Authorisation and restriction of Chemicals
TWA (Time-Weighted Average) : the average exposure over a specified period
vPvB : very persistent and very bioaccumulative
WGK (Wassergefährdungsklasse) : a German classification of substances that indicate the environmental hazard for surface water

This information is to our knowledge correct and complete on the date of issue of this safety data sheet. The information only concerns the product and does not give any guarantee for the quality and the completeness of the properties of the product, or in case of mixing or using in any other process. It remains the responsibility of the user to assure himself that the information is suitable and complete concerning the special use he makes of the product. BRENNTAG denies all responsibility for loss or damage resulting from the use of these data.



MATERIAL SAFETY DATA SHEET

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| Date : 27/2/2012 |
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End of document

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

Methoxy propanol

Version 1.0

Print Date 21.02.2012

Revision Date 21.02.2012

| No. | Short title | Main User Group (SU) | Sector of Use (SU) | Product Category (PC) | Process Category (PROC) | Environmental Release Category (ERC) | Article Category (AC) | Specified |
|-----|--|----------------------|--------------------|-----------------------|---|--------------------------------------|-----------------------|-----------|
| 1 | Manufacture of substance | 3 | 8, 9 | NA | 1, 2, 3, 4, 8a, 8b, 15 | 1 | NA | ES540 |
| 2 | Use as an intermediate | 3 | NA | NA | 1, 2, 3, 4, 8a, 8b, 15 | 6a | NA | ES554 |
| 3 | Formulation & (re)packing of substances and mixtures | 3 | 10 | NA | 1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15 | 2 | NA | ES582 |
| 4 | Use in coatings, solvent based process | 3 | NA | NA | 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15 | 4 | NA | ES608 |
| 5 | Use in coatings, water based process | 3 | NA | NA | 1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15 | 4 | NA | ES621 |
| 6 | Use in coatings, solvent based process | 22 | NA | NA | 1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19 | 8a, 8d | NA | ES623 |
| 7 | Use in coatings, water based process | 22 | NA | NA | 1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19 | 8a, 8d | NA | ES625 |
| 8 | Use in coatings, water based process | 21 | NA | 9a | NA | 8a, 8d | NA | ES654 |
| 9 | Use in coatings, solvent based process | 21 | NA | 9a | NA | 8a, 8d | NA | ES620 |
| 10 | Use in Cleaning Agents | 3 | NA | NA | 1, 2, 3, 4, 7, 8a, 8b, 10, 13 | 4 | NA | ES639 |
| 11 | Use in Cleaning Agents | 22 | NA | NA | 1, 2, 3, 4, 8a, 8b, 10, 11, 13 | 8a, 8d | NA | ES644 |
| 12 | Use in Cleaning Agents | 21 | NA | 35 | NA | 8a, 8d | NA | ES651 |
| 13 | Use in agrochemicals | 22 | NA | NA | 1, 2, 4, 8a, 8b, 11, 13 | 8d | NA | ES539 |
| 14 | Use in de-icing and anti-icing applications | 21 | NA | 4 | NA | 8d | NA | ES661 |
| 15 | Use in cosmetics | 21 | NA | 39 | NA | 8a | NA | ES4083 |

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

Methoxy propanol

Version 1.0

Print Date 21.02.2012

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

| | |
|----------------------------------|--|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals |
| 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 PROC15: Use as laboratory reagent |
| Environmental Release Categories | ERC1: Manufacture of substances |
| Activity | Manufacture of substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container). |

2.1 Contributing scenario controlling environmental exposure for: ERC1

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 200.000 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,6 |
| | Annual site tonnage (tonnes/year): | 120.000 tonnes |
| | Maximum daily site tonnage (kg/day): | 400.000 kg |
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other information | Local marine water dilution factor:100 |

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| | | |
|--|--|---|
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 0,1 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 0,3 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,01 % |
| | initial release prior to RMM | |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) |
| | Water | If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal. (Degradation effectiveness: 0 %) Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no secondary wastewater treatment required |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Common practices vary across sites thus conservative process release estimates used. | |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m ³ /d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for | Waste treatment | During manufacturing no waste of the substance is generated. |

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| | | |
|---|------------------|---|
| disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | During manufacturing no waste of the substance is generated. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15

| | | |
|--|--|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Bulk transfers Dedicated facility | Clear transfer lines prior to de-coupling.(PROC8b) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 530000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 2: Use as an intermediate

| | |
|----------------------------------|--|
| 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 PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15: Use as laboratory reagent |
| Environmental Release Categories | ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) |
| Activity | Use as an intermediate (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container). |

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 57.000 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,2 |
| | Annual site tonnage (tonnes/year): | 11.400 tonnes |
| | Maximum daily site tonnage (kg/day): | 38.000 kg |
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other information | Local marine water dilution factor:100 |
| Other given operational conditions affecting | Number of emission days per year | 300 |

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| | | |
|---|---|---|
| environmental exposure | Emission or Release Factor: Air | 0,01 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 0,05 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,01 % |
| | initial release prior to RMM | |
| <p>Technical conditions and measures at process level (source) to prevent release</p> <p>Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil</p> <p>Organizational measures to prevent/limit release from the site</p> | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Prevent discharge of undissolved substance to or recover from onsite wastewater. Risk from environmental exposure is driven by freshwater. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Common practices vary across sites thus conservative process release estimates used. | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Dispose of waste product or used containers according to local regulations. |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

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PROC8a, PROC8b, PROC15

| | | |
|--|--|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Bulk transfers Dedicated facility | Clear transfer lines prior to de-coupling.(PROC8b) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 2900000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

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Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures

| | |
|----------------------------------|--|
| Main User Groups | SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Sectors of end-use | SU 10: Formulation |
| 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>PROC14: production of preparations or articles by tableting, compression, extrusion, pelettisation</p> <p>PROC15: Use as laboratory reagent</p> |
| Environmental Release Categories | ERC2: Formulation of preparations (mixtures) |
| Activity | Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities. |

2.1 Contributing scenario controlling environmental exposure for: ERC2

Substance is a unique structure, Readily biodegradable.

| | | |
|-------------------------------|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 63.000 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,4 |
| | Annual site tonnage (tonnes/year): | 25.200 tonnes |
| | Maximum daily site tonnage (kg/day): | 84.000 kg |
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |

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| | | |
|--|--|--|
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other information | Local marine water dilution factor:100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 0,5 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 0,3 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,01 % |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to domestic sewage treatment plant, no secondary wastewater treatment required |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Common practices vary across sites thus conservative process release estimates used. | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Dispose of waste product or used containers according to local regulations. |

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

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Batch processes at elevated temperatures (closed systems) | Provide extract ventilation to points where emissions occur.(PROC3) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 530000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment
 Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
 Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either

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alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 4: Use in coatings, solvent based process

| | |
|----------------------------------|--|
| 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>PROC14: production of preparations or articles by tableting, compression, extrusion, pelettisation</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 |
| Activity | Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities. |

2.1 Contributing scenario controlling environmental exposure for: ERC4

Substance is a unique structure, Readily biodegradable.

| | | |
|-------------------------|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 63.000 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,05 |
| | Annual site tonnage (tonnes/year): | 3.200 tonnes |
| | Maximum daily site tonnage (kg/day): | 10.500 kg |

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| | | |
|--|---|---|
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other information | Local marine water dilution factor:100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 90 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 2 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,1 % |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 70 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Common practices vary across sites thus conservative process release estimates used. | |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |

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| | | |
|---|------------------|---|
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

| | | |
|--|--|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Spraying Manual | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7) |
| | Spraying (automatic/robotic) | Carry out in a vented booth or extracted enclosure.(PROC7) |
| Conditions and measures related to personal protection, hygiene and health evaluation | Spraying Manual | Wear suitable gloves tested to EN374.(PROC7) |
| | Roller, spreader, flow application | Wear suitable gloves tested to EN374.(PROC10) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

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| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 79000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 5: Use in coatings, water based process

| | |
|----------------------------------|--|
| 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>PROC14: production of preparations or articles by tableting, compression, extrusion, pelettisation</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 |
| Activity | Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities. |

2.1 Contributing scenario controlling environmental exposure for: ERC4

Substance is a unique structure, Readily biodegradable.

| | | |
|-------------------------|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 5 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 2.600 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,05 |
| | Annual site tonnage (tonnes/year): | 130 tonnes |
| | Maximum daily site tonnage (kg/day): | 430 kg |

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| | | |
|--|--|--|
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other information | Local marine water dilution factor:100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 80 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 10 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,1 % |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Risk from environmental exposure is driven by freshwater. Prevent discharge of undissolved substance to or recover from onsite wastewater. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Common practices vary across sites thus conservative process release estimates used. | |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or |

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| | | |
|---|------------------|---|
| | | reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

| | | |
|---|--|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 5 %. |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Conditions and measures related to personal protection, hygiene and health evaluation | Spraying (automatic/robotic) | Wear suitable gloves tested to EN374.(PROC7) |
| | Spraying Manual | Wear suitable gloves tested to EN374.(PROC7) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 140000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 6: Use in coatings, solvent based process

| | |
|----------------------------------|---|
| Main User Groups | SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| 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>PROC10: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC15: Use as laboratory reagent</p> <p>PROC19: Hand-mixing with intimate contact and only PPE available</p> |
| Environmental Release Categories | <p>ERC8a: Wide dispersive indoor use of processing aids in open systems</p> <p>ERC8d: Wide dispersive outdoor use of processing aids in open systems</p> |
| Activity | Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities. |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|-------------------------------|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 63.000 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,05 |
| | Annual site tonnage (tonnes/year): | 3.150 tonnes |
| | Maximum daily site tonnage (kg/day): | 10.508 kg |
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not | Other data. Other | Local freshwater dilution factor:10 |

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| | | |
|--|---|--|
| influenced by risk management | information | |
| | Other data. Other information | Local marine water dilution factor:100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 90 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 2 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,1 % |
| | initial release prior to RMM | |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Prevent discharge of undissolved substance to or recover from onsite wastewater. Risk from environmental exposure is driven by freshwater. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Common practices vary across sites thus conservative process release estimates used. | |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |

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

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

| | | |
|--|--|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Preparation of material for application Indoor | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC5) |
| | Preparation of material for application Outdoor. | Ensure operation is undertaken outdoors.(PROC5) |
| | Material transfers Drum/batch transfers Non-dedicated facility | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8a) |
| | Roller, spreader, flow application Indoor | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC10) |
| | Roller, spreader, flow application Outdoor. | Ensure operation is undertaken outdoors.(PROC10) |
| | Spraying Manual Indoor | Carry out in a vented booth or extracted enclosure.(PROC11) |
| | Spraying Manual Outdoor. | Ensure operation is undertaken outdoors.(PROC11) |
| | Dipping, immersion and pouring Indoor | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC13) |
| | Dipping, immersion and pouring | Ensure operation is undertaken outdoors.(PROC13) |

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| | | |
|---|--|--|
| | Outdoor. | |
| | Hand application - finger paints, pastels, adhesives Indoor | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC19) |
| | Hand application - finger paints, pastels, adhesives Outdoor. | Ensure operation is undertaken outdoors.(PROC19) |
| Conditions and measures related to personal protection, hygiene and health evaluation | Roller, spreader, flow application | Wear suitable gloves tested to EN374.(PROC10) |
| | Roller, spreader, flow application Outdoor. | Wear suitable gloves tested to EN374.(PROC10) |
| | Spraying Manual Indoor | Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.(PROC11) |
| | Spraying Manual Outdoor. | Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.(PROC11) |
| | Hand application - finger paints, pastels, adhesives Indoor | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC19) |
| | Hand application - finger paints, pastels, adhesives Outdoor. | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC19) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 80000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 7: Use in coatings, water based process

| | |
|----------------------------------|---|
| Main User Groups | SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| 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>PROC10: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC15: Use as laboratory reagent</p> <p>PROC19: Hand-mixing with intimate contact and only PPE available</p> |
| Environmental Release Categories | <p>ERC8a: Wide dispersive indoor use of processing aids in open systems</p> <p>ERC8d: Wide dispersive outdoor use of processing aids in open systems</p> |
| Activity | Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities. |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|-------------------------------|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 5 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 2.600 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,05 |
| | Annual site tonnage (tonnes/year): | 130 tonnes |
| | Maximum daily site tonnage (kg/day): | 433 kg |
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not | Other data. Other | Local freshwater dilution factor:10 |

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| | | |
|--|--|--|
| influenced by risk management | information | |
| | Other data. Other information | Local marine water dilution factor:100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 80 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 10 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0,1 % |
| | initial release prior to RMM | |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Prevent discharge of undissolved substance to or recover from onsite wastewater. Risk from environmental exposure is driven by freshwater. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Common practices vary across sites thus conservative process release estimates used. | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with |

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

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

| | | |
|--|--|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 5 %. |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Spraying Manual Indoor | provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC11) |
| | Spraying Manual Outdoor. | Ensure operation is undertaken outdoors.(PROC11) |
| Conditions and measures related to personal protection, hygiene and health evaluation | Spraying Manual Indoor | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC11) |
| | Spraying Manual Outdoor. | Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC11) |
| | Hand application - finger paints, pastels, adhesives | Wear suitable gloves tested to EN374.(PROC19) |

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3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 15000 kg/day | --- |

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
 Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 8: Use in coatings, water based process

| | |
|----------------------------------|---|
| Main User Groups | SU 21: Consumer uses: Private households (= general public = consumers) |
| Chemical product category | PC9a: Coatings and paints, thinners, paint removers |
| Environmental Release Categories | ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems |
| Activity | Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning. |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 5 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 2.600 tonnes |
| | Fraction of EU tonnage used in region: | 0,1 |
| | Regional use tonnage (tonnes/year): | 260 tonnes |
| | Fraction of Regional tonnage used locally: | 0,0001 |
| | Annual site tonnage (tonnes/year): | 0,026 tonnes |
| | Maximum daily site tonnage (kg/day): | 0,087 kg |
| Frequency and duration of use | Continuous exposure | 300 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data.Other information | Local freshwater dilution factor:: 10 |
| | Other data.Other information | Local marine water dilution factor:: 100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 300 |
| | Emission or Release Factor: Air | 80 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 15 % |
| | initial release prior to RMM | |
| | Emission or Release | 1 % |

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| | | |
|--|--|---|
| | Factor: Soil | |
| | initial release prior to RMM | |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Water | Do not empty into drains. |
| | Soil | Prevent exposure of soil using protective covers |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling consumer exposure for: PC9a

| | | |
|---|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 5 %. |
| | Physical Form (at time of use) | High volatile liquid |
| | Vapour pressure | > 10 Pa |
| | STP (standard temperature and pressure) | |
| Amount used | Amount used per event | 1.880 g |
| Frequency and duration of use | Application duration | 3 h |
| | Frequency of use | 1 Times per day |
| Other given operational conditions affecting consumers exposure | Indoor/Outdoor use. | |
| | Room size | 20 m3 |
| | | |

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| | | |
|--|-------------------|--|
| | | Covers use at ambient temperatures. |
| Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene) | Consumer Measures | Avoid using in room with closed doors. Avoid using when windows closed. |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 15000 kg/day | --- |

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated., The ConsExpo model has been used to estimate consumer exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario 9: Use in coatings, solvent based process

| | |
|----------------------------------|---|
| Main User Groups | SU 21: Consumer uses: Private households (= general public = consumers) |
| Chemical product category | PC9a: Coatings and paints, thinners, paint removers |
| Environmental Release Categories | ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems |
| Activity | Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning. |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers concentrations up to 10% |
| Amount used | Amounts used in the EU (tonnes/year) | 63.000 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,0001 |
| | Annual site tonnage (tonnes/year): | 6,3 tonnes |
| | Maximum daily site tonnage (kg/day): | 3.200 kg |
| Frequency and duration of use | Continuous exposure | 2 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data.Other information | Local freshwater dilution factor:: 10 |
| | Other data.Other information | Local marine water dilution factor:: 100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 2 |
| | Emission or Release Factor: Air | 80 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 15 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 1 % |
| initial release prior to RMM | | |

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| | | |
|--|--|---|
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Water | Do not empty into drains. |
| | Soil | Prevent exposure of soil using protective covers |
| | | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling consumer exposure for: PC9a

| | | |
|---|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers concentrations up to 10% |
| | Physical Form (at time of use) | High volatile liquid |
| | Vapour pressure | > 10 Pa |
| | STP (standard temperature and pressure) | |
| Amount used | Amount used per event | 500 g |
| Frequency and duration of use | Application duration | 1,1 h |
| | Frequency of use | 1 Times per day |
| Other given operational conditions affecting consumers exposure | Indoor/Outdoor use. | |
| | Room size | 20 m3 |
| | Covers use at ambient temperatures. | |
| Conditions and measures related to protection of consumer (e.g. | Consumer Measures | Avoid using in room with closed doors. Avoid using when windows closed. |

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behavioural advice, personal protection and hygiene)

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated., The ConsExpo model has been used to estimate consumer exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario 10: Use in Cleaning Agents

| | |
|----------------------------------|--|
| 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 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</p> |
| Environmental Release Categories | ERC4: Industrial use of processing aids in processes and products, not becoming part of articles |
| Activity | Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance. |

2.1 Contributing scenario controlling environmental exposure for: ERC4

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 5.200 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Fraction of Regional tonnage used locally: | 0,0192 |
| | Annual site tonnage (tonnes/year): | 99,84 tonnes |
| | Maximum daily site tonnage (kg/day): | 5.000 kg |
| Frequency and duration of use | Continuous exposure | 20 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other information | Local marine water dilution factor:100 |

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| | | |
|--|--|--|
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 20 |
| | Emission or Release Factor: Air | 100 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 0,01 % |
| | Emission or Release Factor: Soil | 0 % |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Prevent discharge of undissolved substance to or recover from onsite wastewater. Risk from environmental exposure is driven by marine water. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Common practices vary across sites thus conservative process release estimates used. | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

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PROC7, PROC8a, PROC8b, PROC10, PROC13

| | | |
|--|--|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Use in contained batch processes Treatment by heating | Provide extract ventilation to points where emissions occur.(PROC4) |
| | Cleaning with high pressure washers | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7) |
| | Storage | Store substance within a closed system. |
| Conditions and measures related to personal protection, hygiene and health evaluation | Cleaning with high pressure washers | Limit the substance content in the mixture to 25 % or Avoid carrying out operation for more than 4 hours.(PROC7) |
| | Cleaning No spraying Manual | Wear suitable gloves tested to EN374.(PROC10) |
| | Cleaning with low-pressure washers | Wear suitable gloves tested to EN374.(PROC10) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

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| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 5000 kg/day | --- |

ESVOC spERC 4.4a.v1 has been used to evaluate the exposure for the environment

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 11: Use in Cleaning Agents

| | |
|----------------------------------|---|
| Main User Groups | SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) |
| 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>PROC10: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC13: Treatment of articles by dipping and pouring</p> |
| Environmental Release Categories | <p>ERC8a: Wide dispersive indoor use of processing aids in open systems</p> <p>ERC8d: Wide dispersive outdoor use of processing aids in open systems</p> |
| Activity | Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand). |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| Amount used | Amounts used in the EU (tonnes/year) | 5.200 tonnes |
| | Fraction of EU tonnage used in region: | 0,1 |
| | Regional use tonnage (tonnes/year): | 520 tonnes |
| | Fraction of Regional tonnage used locally: | 0,0005 |
| | Annual site tonnage (tonnes/year): | 0,26 tonnes |
| | Maximum daily site tonnage (kg/day): | 0,712 kg |
| Frequency and duration of use | Continuous exposure | 365 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:10 |
| | Other data. Other | Local marine water dilution factor:100 |

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| | | |
|--|--|--|
| | information | |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 365 |
| | Emission or Release Factor: Air | 2 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 0 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 0 % |
| | initial release prior to RMM | |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 70 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Prevent discharge of undissolved substance to or recover from onsite wastewater. Risk from environmental exposure is driven by marine water. |
| | Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Common practices vary across sites thus conservative process release estimates used. | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

| | | |
|--|---|---|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 100 % (unless stated differently). |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Filling / preparation of equipment from drums or containers Non-dedicated facility Outdoor. | Ensure operation is undertaken outdoors.(PROC8a) |
| | Cleaning Surfaces Manual Dipping, immersion and pouring | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC13) |
| | Cleaning with low-pressure washers | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10) |
| | Cleaning Surfaces Manual Spraying | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10) |
| | Cleaning with high pressure washers Indoor | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC11) |
| | Cleaning with high pressure washers Outdoor. | Ensure operation is undertaken outdoors.(PROC11) |
| | Ad hoc manual application via trigger sprays, dipping, etc Rolling, Brushing | Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10) |
| | Storage | Store substance within a closed system. |
| Conditions and measures related to personal protection, hygiene and health evaluation | Filling / preparation of equipment from drums or containers | Avoid carrying out operation for more than 4 hours.(PROC8a) |

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| | | |
|--|---|---|
| | Non-dedicated facility Outdoor. | |
| | Cleaning Surfaces Manual Spraying | Wear suitable gloves tested to EN374.(PROC10) |
| | Cleaning with high pressure washers Indoor | Limit the substance content in the mixture to 5 %. Wear suitable gloves tested to EN374.(PROC11) |
| | Cleaning with high pressure washers Outdoor. | Limit the substance content in the mixture to 5 %. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC11) |
| | Ad hoc manual application via trigger sprays, dipping, etc Rolling, Brushing | Wear suitable gloves tested to EN374.(PROC10) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

| Contributing Scenario | Specific conditions | Compartment | Value | Level of Exposure | RCR |
|-----------------------|---------------------|-------------|-------|-------------------|-----|
| --- | --- | --- | Msafe | 550 kg/day | --- |

ESVOC spERC 8.4b.v1 has been used to evaluate the exposure for the environment

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 12: Use in Cleaning Agents

| | |
|----------------------------------|---|
| Main User Groups | SU 21: Consumer uses: Private households (= general public = consumers) |
| Chemical product category | PC35: Washing and cleaning products (including solvent based products) |
| Environmental Release Categories | ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems |
| Activity | Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products. |

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers concentrations up to 10% |
| Amount used | Amounts used in the EU (tonnes/year) | 260 tonnes |
| | Fraction of EU tonnage used in region: | 0,1 |
| | Regional use tonnage (tonnes/year): | 26 tonnes |
| | Fraction of Regional tonnage used locally: | 0,0005 |
| | Annual site tonnage (tonnes/year): | 0,01 tonnes |
| | Maximum daily site tonnage (kg/day): | 0,03 kg |
| Frequency and duration of use | Continuous exposure | 365 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data.Other information | Local freshwater dilution factor:: 10 |
| | Other data.Other information | Local marine water dilution factor:: 100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 365 |
| | Emission or Release Factor: Air | 95 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 2,5 % |
| | initial release prior to RMM | |
| | Emission or Release | 2,5 % |

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| | | |
|---|--|---|
| | Factor: Soil | |
| | initial release prior to RMM | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling consumer exposure for: PC35, Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

| | | |
|---|--|---------------------------------|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers concentrations up to 10% |
| | Physical Form (at time of use) | High volatile liquid |
| | Vapour pressure | > 10 Pa |
| | STP (standard temperature and pressure) | |
| Amount used | Amount used per event | 16 g |
| Frequency and duration of use | Application duration | 60 min |
| | Frequency of use | 3 Times per day |
| | Frequency of use | 365 days/year |
| Other given operational conditions affecting consumers exposure | Indoor/Outdoor use. | |
| | Room size | 15 m3 |
| | Covers use under typical household ventilation., Covers use at ambient temperatures. | |

2.3 Contributing scenario controlling consumer exposure for: PC35, Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

| | | |
|-------------------------|-----------------------------------|---------------------------------|
| Product characteristics | Concentration of the Substance in | Covers concentrations up to 10% |
|-------------------------|-----------------------------------|---------------------------------|

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| | | |
|---|--|----------------------|
| | Mixture/Article | |
| | Physical Form (at time of use) | High volatile liquid |
| | Vapour pressure | > 10 Pa |
| | STP (standard temperature and pressure) | |
| Amount used | Amount used per event | 16 g |
| Frequency and duration of use | Application duration | 60 min |
| | Frequency of use | 1 Times per day |
| | Frequency of use | 365 days/year |
| Other given operational conditions affecting consumers exposure | Indoor/Outdoor use. | |
| | Room size | 15 m3 |
| | Covers use under typical household ventilation., Covers use at ambient temperatures. | |

3. Exposure estimation and reference to its source

Environment

Used EUSES model., ESVOc spERC 8.4c.v1 has been used to evaluate the exposure for the environment

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated., The ConsExpo model has been used to estimate consumer exposures unless otherwise indicated.

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

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario 13: Use in agrochemicals

| | |
|----------------------------------|---|
| 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 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 PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring |
| Environmental Release Categories | ERC8d: Wide dispersive outdoor use of processing aids in open systems |
| Activity | Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal. |

2.1 Contributing scenario controlling environmental exposure for: ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| Amount used | Amounts used in the EU (tonnes/year) | 650 tonnes |
| | Fraction of EU tonnage used in region: | 1 |
| | Regional use tonnage (tonnes/year): | 650 tonnes |
| | Fraction of Regional tonnage used locally: | 0,001 |
| | Annual site tonnage (tonnes/year): | 0,65 tonnes |
| | Maximum daily site tonnage (kg/day): | 325 kg |
| Frequency and duration of use | Continuous exposure | 2 days/year, Intermittent release |
| Environment factors not influenced by risk management | Other data. Other information | Local freshwater dilution factor:: 10 |
| | Other data. Other information | Local marine water dilution factor:: 100 |

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| | | |
|--|--|---|
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 2 |
| | Emission or Release Factor: Air | 5 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 10 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 80 % |
| | initial release prior to RMM | |
| Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site | Air | Treat air emissions to provide a typical removal (or abatement) (Efficiency: 0 %) |
| | Water | Treat onsite wastewater (prior to receiving water discharge) to provide the required removal (or abatement). (Degradation effectiveness: 87,3 %) If discharging to domestic sewage treatment plant, no secondary wastewater treatment required Prevent discharge of undissolved substance to or recover from onsite wastewater. Risk from environmental exposure is driven by marine water. |
| | Common practices vary across sites thus conservative process release estimates used. | |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m ³ /d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| | Sludge Treatment | Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed. |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC4, PROC8a,

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PROC8b, PROC11, PROC13

| | | |
|--|--|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers percentage substance in the product up to 25 %. |
| | Physical Form (at time of use) | Medium volatile liquid |
| | Vapour pressure | 0,5 - 10 kPa |
| | STP (standard temperature and pressure) | |
| Amount used | not applicable | |
| Frequency and duration of use | Covers daily exposures up to 8 hours (unless stated differently). | |
| Other operational conditions affecting workers exposure | Assumes use at not more than 20°C above ambient temperature (unless stated differently). | |
| Technical conditions and measures to control dispersion from source towards the worker | Spraying/ fogging by machine application | Carry out in a vented booth or extracted enclosure.(PROC11) |
| Conditions and measures related to personal protection, hygiene and health evaluation | Spraying/fogging by manual application Outdoor. | Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140 with Type A filter or better.(PROC11) |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

Workers

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

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

Environment
 Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
 Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
 Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

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Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 14: Use in de-icing and anti-icing applications

| | |
|----------------------------------|---|
| Main User Groups | SU 21: Consumer uses: Private households (= general public = consumers) |
| Chemical product category | PC4: Anti-freeze and de-icing products |
| Environmental Release Categories | ERC8d: Wide dispersive outdoor use of processing aids in open systems |
| Activity | De-icing of vehicles and similar equipment by spraying. |

2.1 Contributing scenario controlling environmental exposure for: ERC8d

Substance is a unique structure, Readily biodegradable.

| | | |
|---|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers concentrations up to 30% |
| Amount used | Fraction of EU tonnage used in region: | 0,1 |
| | Amounts used in the EU (tonnes/year) | 260 tonnes |
| | Fraction of Regional tonnage used locally: | 0,002 |
| | Annual site tonnage (tonnes/year): | 0,52 tonnes |
| | Maximum daily site tonnage (kg/day): | 26 kg |
| Frequency and duration of use | Continuous exposure | 2 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data.Other information | Local freshwater dilution factor:: 10 |
| | Other data.Other information | Local marine water dilution factor:: 100 |
| Other given operational conditions affecting environmental exposure | Number of emission days per year | 2 |
| | Emission or Release Factor: Air | 90 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Water | 5 % |
| | initial release prior to RMM | |
| | Emission or Release Factor: Soil | 5 % |
| initial release prior to RMM | | |

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Methoxy propanol

Version 1.0

Print Date 21.02.2012

Revision Date 21.02.2012

| | | |
|---|--|---|
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |
| Conditions and measures related to external treatment of waste for disposal | Disposal methods | Waste product and empty containers should be disposed of as hazardous waste in accordance with all local and national regulations |
| Conditions and measures related to external recovery of waste | Recovery Methods | External recovery and recycling of waste should comply with applicable local and/or national regulations. |

2.2 Contributing scenario controlling consumer exposure for: PC4

| | | |
|---|---|---------------------------------|
| Product characteristics | Concentration of the Substance in Mixture/Article | Covers concentrations up to 30% |
| | Physical Form (at time of use) | High volatile liquid |
| | Vapour pressure | > 10 Pa |
| | STP (standard temperature and pressure) | |
| Amount used | Amount used per event | 500 g |
| Frequency and duration of use | Application duration | 0,5 h |
| | Frequency of use | 1 Times per day |
| Other given operational conditions affecting consumers exposure | Covers outdoor use. | |

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

Consumers

The ECETOC TRA tool has been used to estimate consumer exposures unless otherwise indicated., The ConsExpo model has been used to estimate consumer exposures unless otherwise indicated.

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

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Exposure Scenario

Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario 15: Use in cosmetics

| | |
|----------------------------------|---|
| Main User Groups | SU 21: Consumer uses: Private households (= general public = consumers) |
| Chemical product category | PC39: Cosmetics, personal care products |
| Environmental Release Categories | ERC8a: Wide dispersive indoor use of processing aids in open systems |
| Activity | Consumer uses e.g. as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation. |

2.1 Contributing scenario controlling environmental exposure for: ERC8a

| | | |
|---|---|--|
| Product characteristics | Concentration of the Substance in Mixture/Article | Not applicable. |
| Amount used | Amounts used in the EU (tonnes/year) | 260 tonnes |
| | Fraction of EU tonnage used in region: | 0,1 |
| | Fraction of Regional tonnage used locally: | 0,0005 |
| | Annual site tonnage (tonnes/year): | 13 kg/year |
| | Maximum daily site tonnage (kg/day): | 0,04 kg |
| Frequency and duration of use | Continuous exposure | 365 days/year, Continuous release |
| Environment factors not influenced by risk management | Other data.Other information | Local freshwater dilution factor:: 10 |
| | Other data.Other information | Local marine water dilution factor:: 100 |
| Conditions and measures related to sewage treatment plant | Type of Sewage Treatment Plant | Domestic sewage treatment plant |
| | Flow rate of sewage treatment plant effluent | 2.000 m3/d |
| | Degradation efficiency | 87,3 % |
| | Percentage removed from waste eater | 87,3 % |

2.2 Contributing scenario controlling consumer exposure for: PC39

Consumer exposure for PC39 (cosmetic products) is regulated by the Cosmetic Directive 76/768/EEC and therefore out of scope for this section.

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3. Exposure estimation and reference to its source

Environment

ESVOC spERC 8.16.v1 has been used to evaluate the exposure for the environment

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

Environment

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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| activities | Distribution and export of chemicals and raw materials | |
| VAT number | BE0405317567 | NL001375945B01 |
| recall procedure available | Yes | |
| emergency number (24/365) | +32 (0)56 77 69 44 | +31 (0)78 6544 944 |
| QUALITY SYSTEMS | | |
| ISO 9001 | Yes | Yes |
| ISO 14001 | Yes | Yes |
| ISO 22000 | Yes | Yes |
| FSSC 22000 | Yes | Yes |
| GMP+ -feed | Yes | Yes |
| OHSAS18001 | - | Yes |
| ESAD | Yes | Yes |
| other | - | AEO |