

ISOBUTANOL

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

1.1. Product identifier

Chemical description : Isobutanol , Isobutyl alcohol , 2-Methylpropan-1-ol .
 Type of product : Pure product .
 Reach registration number : 01-2119484609-23

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

- * Identified use(s) : See table on the front page of the annex.
- * Use(s) advised against : This product is not recommended for any industrial, professional or consumer use other than identified in table on the front page of the annex.
 Not for use in ornamental articles, in tricks and jokes and in games (in accordance with Annex XVII to Regulation (EC) No 1907/2006) (3. Liquid substances or mixtures, which are regarded as dangerous according to the definitions in Council Directive 67/548/EEC and Directive 1999/45/EC).
 Not for use in aerosol dispensers for entertainment and decorative purposes (in accordance with Annex XVII to Regulation (EC) No 1907/2006) (40. Substances meeting the criteria of flammability in Directive 67/548/EEC and classified as flammable, highly flammable or extremely flammable regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not).

1.3. Details of the supplier of the safety data sheet

- * Company identification : BRENNTAG N.V. - Nijverheidslaan 38 - BE-8540 DEERLIJK
 TEL: +32(0)56/77.69.44 - FAX: +32(0)56/77.57.11
 E-MAIL: info@brenntag.be - Website: www.brenntag.be

 BRENNTAG Nederland B.V. - Donker Duyvisweg 44 - NL-3316 BM DORDRECHT
 TEL: +31(0)78/65.44.944 - FAX: +31(0)78/65.44.919
 E-MAIL: info@brenntag.nl - Website: www.brenntag.nl

1.4. Emergency telephone number

- * Emergency phone number : Belgium : Antipoison Center - Brussels
 TEL: +32(0)70/245.245

 The Netherlands : National Poisoning Information Center - Bilthoven
 TEL: +31(0)30/274.88.88 (Only for the purpose of informing medical personnel in cases of acute intoxications)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids - Category 3 - Warning (Flam. Liq. 3; H226)
 Skin irritation - Category 2 - Warning (Skin Irrit. 2; H315)
 Serious eye damage - Category 1 - Danger (Eye Dam. 1; H318)
 Specific Target Organ Toxicity - Single exposure - Respiratory tract irritation - Category 3 - Warning (STOT SE 3; H335)
 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) : Isobutanol
- Hazard pictogram(s)



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SECTION 2. Hazards identification (continued)

- Signal word : Danger
- Hazard statements : 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.
- * • Precautionary statements
 - Prevention : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 - Response : P302+P352 - IF ON SKIN : Wash with plenty of soap and water. P305+P351+P338 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER/doctor/...
 - Storage : P403+P233 - Store in well-ventilated place. Keep container tightly closed.

2.3. Other hazards

- Physical/chemical hazards : Reacts with aluminium above 50°C forming hydrogen gas.
- Hazards for the health : A health dangerous concentration in the air will very quickly be reached by evaporation of this substance at app. 20°C; even faster by spraying.
- 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.

SECTION 3. Composition/information on ingredients

3.1. Substances

Name component(s)	Weight %	CAS nr	EINECS nr	Index nr	Reach nr	CLASSIFICATION
* Isobutanol	: > 99 %	78-83-1	201-148-0	603-108-00-1	01-2119484609-23	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 STOT SE 3; H336

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

SECTION 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 in semi-sitting position. If not breathing, give artificial respiration. Consult a doctor.
 - Skin Contact : Remove contaminated clothing. Rinse skin immediately with mild soap and plenty of water. (shower if necessary). Consult doctor if irritation develops.
 - * - Eye Contact : Rinse immediately thoroughly and long (at least 15 min.) with plenty of water. Remove contact lenses. Consult eye doctor. Keep rinsing or dripping the eye during transport.

ISOBUTANOL**Code : 13299****SECTION 4. First aid measures (continued)**

- Ingestion : DO NOT INDUCE VOMITING. Rinse mouth with water.
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.

SECTION 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.

SECTION 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 and eliminate as hazardous waste.
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.

SECTION 7. Handling and storage**7.1. Precautions for safe handling**

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SECTION 7. Handling and storage (continued)

Handling : AVOID FOG TRANSFORMATION ! STRONG HYGIENE !
 Avoid breathing vapour and contact with skin, eyes and clothing.
 Wear recommended personal protective equipment. (See section 8)
 When using, do not eat, drink or smoke.
 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 cool, well ventilated and fireproof place.
 All dangerous products should be placed on a drip tray or should be barreled.
 Keep away from : Oxidizing agents , Strong acids , Alkali- and earthalkali-metals .

Protection against Fire and Explosion : Remove all sources of ignition (open fire, sparks, smoking, ...).
 Heavier than air, vapours may travel long distances along ground, ignite and flash back to source.
 Take measures against electrostatic discharges.
 Use explosionproof equipment.
 Use spark-arm implement.

Packaging Material : Stainless steel , Soft steel , Glass .

Insuitable Packaging Material : Aluminium , Synthetic material , Rubber .

7.3. Specific end use(s)

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

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

* Occupational Exposure Limits : Isobutanol : Limit value (BE) : 50 ppm (154 mg/m³) (2014)

Biological limit values : They will be included when available.

DNELs : • Isobutanol : Worker, long-term - local effects, inhalation : 310 mg/m³
 • Isobutanol : Consumer, long-term - local effects, inhalation : 55 mg/m³
 • Isobutanol : Consumer, long-term - systemic effects, oral : 25 mg/kg bw/ day

PNECs : • Isobutanol : Fresh water : 0,4 mg/l
 • Isobutanol : Marine water : 0,04 mg/l
 • Isobutanol : Fresh water sediment : 1,52 mg/kg
 • Isobutanol : Marine water sediment : 0,152 mg/kg
 • Isobutanol : Soil : 0,0699 mg/kg
 • Isobutanol : Intermittent release : 11 mg/l
 • Isobutanol : Sewage treatment plant : 10 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):
 The suitability of the gloves and the breakthrough time for a specific workplace should be discussed with the producers of the protective gloves.
 - material : Butyl rubber
 - breakthrough time : > 480'
 - thickness : 0,5 mm

- Eye/Face protection : Closed safety glasses or face shield.

Environmental exposure controls : See sections 6, 7, 12 and 13.

ISOBUTANOL**Code : 13299****SECTION 9. Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical State (20°C)	: Liquid .
Form/Colour	: Clear , Colourless .
Odour	: Odour of alcohol .
Odour threshold	: 0,036 mg/m ³
* pH value	: 7 (8g/100 ml)
Melting/Freezing point	: < -90 °C
Boiling Point/Range (1013 hPa)	: 108 °C
Flash point (CC)	: 31 °C
Evaporation rate	: 24 (Ether = 1) 0,8 (Butyl acetate = 1)
Explosion limits in air	: 1,2 - 10,9 vol.%
Vapour pressure	: 1,0 - 1,6 kPa (20°C) 72 hPa (50°C)
Relative vapour density (air=1)	: 2,6
Relative density of saturated vapour/air mixture (air=1)	: 1,02
* Relative density (water=1)	: 0,8
Density	: 0,80 kg/l
Solubility in water	: 7 - 10 g/100ml
Soluble in	: Ethanol , Ether , Glycerol .
Log P Octanol/Water (20°C)	: 0,77 (calculated)
Log P Octanol/Water at 25°C	: 1
Auto-ignition temperature	: 390 - 430 °C
Minimum ignition energy	: No data available.
Decomposition temperature	: No data available.
* Viscosity (20°C)	: 5 mm ² /s (Kinematic) 3,1-4 mPa.s (Dynamic)
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)	: 69,7 mN/m
Specific leading	: 1,6 E6 pS/m
% Volatiles (by weight)	: > 99
Saturation concentration	: 36 g/m ³
Others	: Oily .

SECTION 10. Stability and reactivity**10.1. Reactivity**

Reactivity : Reacts violently with oxidizing agents and strong acids.

10.2. Chemical stability

Stability : Stable at normal circumstances .

10.3. Possibility of hazardous reactions

Hazardous reactions : Reacts with aluminium above 50°C forming hydrogen gas.

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SECTION 10. Stability and reactivity (continued)

10.4. Conditions to avoid

Conditions to avoid : High temperatures .

10.5. Incompatible materials

Materials to avoid : Oxidizing agents , Strong acids , Alkali- and earthalkali-metals , Synthetic material , Rubber .

10.6. Hazardous decomposition products

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

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity

- * - Inhalation : Symptoms include: Headache , Cough , Sore throat , Drowsiness , Shortness of breath .
• Isobutanol : LC50 (Rat, inhalation, 6 h) : > 18,18 mg/l (Air)
- * - Skin contact : Product degreases skin.
Symptoms include: Redness , Pain .
• Isobutanol : LD50 (Rabbit, dermal) : > 2000 mg/kg (OECD Guideline 402)
- * - Ingestion : Harmful if swallowed.
Symptoms include: Abdominal pain , Vomiting , Drowsiness .
• Isobutanol : LD50 (Rat, oral) : > 2830 mg/kg (OECD Guideline 401)

Skin corrosion/irritation

: Repeated exposure may cause skin dryness or cracking.

Serious eye damage/irritation

: Risk of serious damage to eyes .

Aspiration hazard

: Ingestion of this product may lead to chemical pneumonia and even death.

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 : May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

: To human : Listed not for organ toxicity .
For animals : Target organ(s) : Liver , Central nervous system .

SECTION 12. Ecological information

12.1. Toxicity

- * Ecotoxicity : • Isobutanol : LC50 (Fish, 96 h) : 1430 mg/l (Pimephales promelas)
• Isobutanol : EC50 (Algae, 72 h) : 593-1799 mg/l (Pseudokirchneriella subcapitata)(OECD Guideline 201)
• Isobutanol : EC50 (Daphnia pulex, 48 h) : 1100 mg/l

12.2. Persistence and degradability

Persistence and degradability : • Isobutanol : Persistence and degradability : Readily biodegradable .

12.3. Bioaccumulative potential

Bioaccumulation : • Isobutanol : Bioaccumulation : Bioaccumulation not expected .

12.4. Mobility in soil

- * Mobility : • Isobutanol : Mobility : Very high potential for mobility in soil.

ISOBUTANOL**Code : 13299****SECTION 12. Ecological information (continued)****12.5. Results of PBT and vPvB assessment**

Evaluation : • Isobutanol : PBT/vPvB : No

12.6. Other adverse effects

Photochemical ozone creation potential : No data available.

Ozone depletion potential : None .

Endocrine disrupting potential : No data available.

Global warming potential : No data available.

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

UN Number : 1212

14.2. UN proper shipping name

ADR/RID Name : UN 1212 Isobutanol (Isobutyl alcohol), 3, III, (D/E)

ADN Name : UN 1212 Isobutanol (Isobutyl alcohol), 3, III

IMDG Name : UN 1212 Isobutanol (Isobutyl alcohol), 3, III, (31°C)

* IATA Name : UN 1212 Isobutanol (Isobutyl alcohol) , 3, III

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 and the IBC Code

Type ship : 3

Pollution category : Z

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SECTION 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° : 2-3-0
- 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)
- National regulations
- * - Germany : WGK : 1
- * - Netherlands : Water damaging : 11
 Decontamination exertion : B

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.

SECTION 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 of product , Chemical cards , ...)
 See also on the webaddress:
<http://apps.echa.europa.eu/registered/registered-sub.aspx#search>
- (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.

ISOBUTANOL**Code : 13299****SECTION 16. Other information (continued)**

- * 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
EC50 : median Effective Concentration
EmS (Emergency Schedule) : the first code refers to the relevant fire schedule and the second code refers to the relevant spillage schedule
Eye Dam. 1 : Serious eye damage - Category 1
Flam. Liq. 3 : Flammable liquids - Category 3
IATA (International Air Transport Association) : provisions concerning the international carriage of dangerous goods by air
IMDG (International Maritime Dangerous Goods code)
LC50 : median Lethal Concentration
LD50 : median Lethal Dose
NFPA (National Fire Protection Association) or fire diamant
NVC I : National Poisoning Information Center
OECD : Organisation for Economic Cooperation and Development
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
RID (Règlement concernant le transport International ferroviaire des marchandises Dangereuses) : Regulation concerning the International carriage of Dangerous goods by rail
Skin Irrit. 2 : Skin irritation - Category 2
STOT SE 3 : Specific Target Organ Toxicity - Single exposure - Category 3
WGK (Wassergefährdungsklasse) : a German classification of substances that indicate the environmental hazard for surface water
vPvB : very persistent and very bioaccumulative

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.

End of document

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Version 1.1

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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, 4, 6a	NA	ES875
2	Use as an intermediate	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9	6a	NA	ES877
3	Distribution of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1	NA	ES882
4	Distribution of substance	22	NA	NA	1, 2, 3, 4, 8a, 8b, 9, 15	8a, 8d	NA	ES886
5	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES880
6	Polymer processing	3	NA	NA	1, 2, 3, 4, 8a, 8b, 9	4	NA	ES1270
7	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15	4	NA	ES887
8	Uses in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15, 19	8a, 8c, 8d, 8f	NA	ES891
9	Uses in coatings	21	NA	1, 4, 9a, 9b, 9c, 15, 18, 23, 24, 31	NA	8a, 8c, 8d, 8f	NA	ES894
10	Use in Cleaning Agents	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13	4	NA	ES988
11	Use in Cleaning Agents	22	NA	NA	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13	8a, 8d	NA	ES996
12	Use in Cleaning Agents	21	NA	4, 9a, 9c, 24, 35, 38	NA	8a, 8d	NA	ES1001
13	Use in agrochemicals	22	NA	NA	5, 11	8a, 8b	NA	ES8604
14	Use in agrochemicals	21	NA	27	NA	8a, 8d	NA	ES8606
15	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4	NA	ES1026
16	Use as lubricants	22	NA	NA	1, 2, 3, 4, 8a, 8b, 9,	8a, 8d, 9a, 9b	NA	ES1030

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					10, 11, 13, 17, 18, 20			
17	Use as lubricants	21	NA	1, 24, 31, 35	NA	8a, 8d, 9a, 9b	NA	ES1230
18	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES1268
19	Use in metal working fluids / rolling oils	3	NA	NA	1, 2, 3, 5, 7, 8a, 8b, 9, 10, 13, 17	4	NA	ES1264
20	Use in metal working fluids / rolling oils	22	NA	NA	1, 2, 3, 5, 8a, 8b, 10, 11, 13, 17	8a, 8b	NA	ES1266
21	Other consumer uses	21	NA	28, 39	NA	8a, 8d	NA	ES8608

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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 ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4, ERC6a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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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 the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC8a, PROC8b)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene	Use suitable eye protection and gloves.	

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and health evaluation

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

PROC15 ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,249
PROC4	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC8a	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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
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 PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Amount used	Daily amount per site	60,98 (ERC6a)
	Annual amount per site	20124
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,05 %
	Emission or Release Factor: Water	0,001 %
	Emission or Release Factor: Soil	0,1 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,4 %
	Sludge Treatment	Do not apply industrial sludge to natural soils.

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

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PROC8a, PROC8b, PROC9

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Indoor/Outdoor use.	
	Assumes activities are at ambient temperature.	
	Indoor(PROC8a, PROC8b)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC8a, PROC9)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0797mg/L	0,1993
---	---	Fresh water sediment	PEC	0,5634mg/kg dwt	0,3707
---	---	Marine water	PEC	0,0082mg/L	0,2044
---	---	Marine sediment	PEC	0,0578mg/kg dwt	0,3800
---	---	Soil	PEC	0,0048mg/kg dwt	0,0575
---	---	Sewage treatment plant (STP)	PEC	0,7623mg/L	0,0762

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ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC8a, PROC9	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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 3: Distribution 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 PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1

Amount used	Daily amount per site	8,51
	Annual amount per site	42577
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,01 %
	Emission or Release Factor: Water	0,001 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,4 %

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

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Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC8a, PROC8b)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC5, PROC8a, PROC9)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0035mg/L	0,0088
---	---	Fresh water sediment	PEC	0,0248mg/kg dwt	0,0163
---	---	Marine water	PEC	0,0006mg/L	0,0138
---	---	Marine sediment	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,0028mg/kg dwt	0,0405
---	---	Sewage treatment plant (STP)	PEC	0,0002mg/L	0,0000

Workers

ECETOC TRA Version 2 with modifications has been used.

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Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC8a, PROC9	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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: Distribution of substance

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>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	<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>

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Avoid carrying out operation for more than 4 hours.(PROC8a, PROC8b, PROC9)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

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Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	---
PROC2	---	worker inhalation, long term - systemic	61,75mg/m ³	---
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	---
PROC4	---	worker inhalation, long term - systemic	154,38mg/m ³	---
PROC8a, PROC9	---	worker inhalation, long term - systemic	185,25mg/m ³	---
PROC8b	---	worker inhalation, long term - systemic	92,63mg/m ³	---
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	---

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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: 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 [mixing] of preparations and/ or re-packaging (excluding alloys)
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>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	36,38
	Annual amount per site	10915
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,1 %
	Emission or Release Factor: Water	0,02 %
	Emission or Release Factor: Soil	0,01 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,4 %

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

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Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC8a, PROC8b)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC5, PROC8a, PROC9)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	PEC	0,0490mg/L	0,1224
---	---	---	PEC	0,346mg/kg dwt	0,2276
---	---	---	PEC	0,0051mg/L	0,1274
---	---	---	PEC	0,0360mg/kg dwt	0,2370
---	---	---	PEC	0,0487mg/kg dwt	0,6966
---	---	---	PEC	0,4546mg/L	0,0455

Workers

ECETOC TRA Version 2 with modifications has been used.

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Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0995
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC5, PROC8a, PROC9	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0497
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0995

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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: Polymer processing

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

2.1 Contributing scenario controlling environmental exposure for: ERC4

Amount used	Daily amount per site	16,67
	Annual amount per site	5000
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	10 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,5 %

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
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---	---	Fresh water	PEC	0,0035mg/L	0,0087
---	---	Fresh water sediment	PEC	0,0247mg/kg dwt	0,0163
---	---	Marine sediment	PEC	0,0006mg/L	0,0138
---	---	Marine water	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,1000mg/kg dwt	0,9636
---	---	Sewage treatment plant (STP)	PEC	0mg/L	0

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

Not applicable.

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.

Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2

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 7: Uses in coatings

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>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4

Amount used	Daily amount per site	10,39
	Annual amount per site	3116
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,18 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,4 %

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

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Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Indoor/Outdoor use.	
	Assumes activities are at ambient temperature.	
	Indoor(PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC5, PROC8a, PROC9, PROC10, PROC13)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
	Clean spray booth and exhaust hood completely with every product change.(PROC7)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Stay upwind/ keep distance from source.(PROC7)	
	Regular inspection and maintenance of equipment and machines.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	
	Spraying should be carried out in a vented laminar spray booth or using respiratory PPE.(PROC7)	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0035mg/L	0,0087
---	---	Fresh water sediment	PEC	0,0247mg/kg dwt	0,0163
---	---	Marine water	PEC	0,0006mg/L	0,0138
---	---	Marine sediment	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,0080mg/kg dwt	0,1144
---	---	Sewage treatment plant (STP)	PEC	0mg/L	0

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Workers

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC5, PROC8a, PROC9, PROC10, PROC13	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC7	---	worker inhalation, long term - systemic	0mg/m ³	0
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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.
 Not applicable.

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: Uses in coatings

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>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</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>ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix</p> <p>ERC8d: Wide dispersive outdoor use of processing aids in open systems</p> <p>ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix</p>

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f

Amount used	Daily amount for wide dispersive uses	0,2 kg/day
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Regional use tonnage (tons/year):	1575
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	98 %
	Emission or Release Factor: Water	1 %
	Emission or Release	1 %

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	Factor: Soil	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,4 %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Frequency of use	< 4 hours/day(PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19)
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 47 %)(PROC11)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases	
	Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Stay upwind/ keep distance from source.(PROC11)	
	Regular inspection and maintenance of equipment and machines.(PROC11)	
	Clean equipment and the work area every day.(PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC11)	
	Use suitable eye protection and gloves.	
	If above technical/organisational control measures are not feasible, then adopt following PPE:	
	Wear respiratory protection. (Efficiency: 80 %)(PROC11)	
	Wear respiratory protection. or Avoid carrying out operation for more than 2 hours.(PROC11)	
Spraying should be carried out in a vented laminar spray booth or using respiratory PPE.(PROC11)		

3. Exposure estimation and reference to its source

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Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0035mg/L	0,0088
---	---	Fresh water sediment	PEC	0,0248mg/kg dwt	0,0163
---	---	Marine water	PEC	0,0006mg/L	0,0138
---	---	Marine sediment	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,0028mg/kg dwt	0,0404
---	---	Sewage treatment plant (STP)	PEC	0,0001mg/L	0

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15, PROC19

ECETOC TRA Version 2 with modifications has been used.

PROC11 Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC5, PROC8a, PROC9, PROC10	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC8b	---	worker inhalation, long term - systemic	92,63mg/m ³	0,2988
PROC11	With spray booth	worker inhalation, long term - systemic	0mg/m ³	0
PROC11	with local exhaust ventilation, no respiratory protection (RPE)	worker inhalation, long term - systemic	256,10mg/m ³	0,8261

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PROC11	With respiratory protection, 80%, or, reduced duration	worker inhalation, long term - systemic	240,60mg/m ³	0,7761
PROC13	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC19	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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.
 Not applicable.

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 9: Uses in coatings

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants PC4: Anti-freeze and de-icing products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC15: Non-metal-surface treatment products PC18: Ink and toners PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC31: Polishes and wax blends
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
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2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	9 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC1 , Glues, hobby use)

2.3 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

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Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	6390 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	6 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.(PC1, Glues DIY-use (carpet glue, tile glue, wood parquet glue))	

2.4 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Tier 2: ConsExpo estimates

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Covers use amounts up to 9000g	
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	85 minutes/event
Other given operational conditions affecting consumers exposure	Room size	53 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC1 , Glues DIY-use (carpet glue, tile glue, wood parquet glue))

2.5 Contributing scenario controlling consumer exposure for: PC1: Glue from spray

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
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	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC1 , Glue from spray)

2.6 Contributing scenario controlling consumer exposure for: PC1: Sealants

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	390 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC1 , Sealants)

2.7 Contributing scenario controlling consumer exposure for: PC4: Washing car window

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	2 minutes/event

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Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC4 , Washing car window)

2.8 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	2000 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	10 minutes/event
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC4 , Pouring into radiator)
	Ensure good ventilation when using indoors e.g. open windows.(PC4, Pouring into radiator)	

2.9 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	4 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	15 minutes/event
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC4 , Lock de-icer)

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2.10 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	3750 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	132 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9a , Waterborne latex wall paint)

2.11 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 4%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	1300 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	140 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9a , Solvent rich, high solid, water borne paint)

2.12 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
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	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	1300 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	20 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9a , Aerosol spray can)
2.13 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 4%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	2000 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	30 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9a , Removers (paint-, glue-, wall paper-, sealant-remover))
2.14 Contributing scenario controlling consumer exposure for: PC9c: Finger paints		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	1,35 g
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	(swallowed)	
Frequency and duration of use	Frequency of use	1 Times per day
Other given operational conditions affecting consumers exposure	Room size	30 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9c , Finger paints)

2.15 Contributing scenario controlling consumer exposure for: PC15: Waterborne latex wall paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	3750 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	140 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC15 , Waterborne latex wall paint)

2.16 Contributing scenario controlling consumer exposure for: PC15: Solvent rich, high solid, water borne paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 4%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	1300 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	140 minutes/event
Other given operational conditions affecting consumers	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at	

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exposure	ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC15 , Solvent rich, high solid, water borne paint)

2.17 Contributing scenario controlling consumer exposure for: PC15: Aerosol spray can

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	1300 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	20 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC15 , Aerosol spray can)

2.19 Contributing scenario controlling consumer exposure for: PC18: Refilling of toners

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 4%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	40 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	140 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC18 , Refilling of toners)

2.20 Contributing scenario controlling consumer exposure for: PC23: Polishes, wax/cream

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(floor, furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	56 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC23 , Polishes, wax/cream (floor, furniture, shoes))

2.21 Contributing scenario controlling consumer exposure for: PC23: Polishes, spray (furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	56 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC23 , Polishes, spray (furniture, shoes))

2.22 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
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	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	550 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC31 , Polishes, wax / cream (floor, furniture, shoes))

2.23 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	550 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC31 , Polishes, spray (furniture, shoes))

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

PC18 Use of ECETOC TRA Version 2 with modifications.

PC15, PC23, PC31, PC1-2b, PC1-3, PC1-4, PC4-2, PC9a-1, PC9a-2, PC9a-3, PC9a-4, PC15-1, PC15-3

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ConsExpo 4.1
 PC9c ECETOC TRA Version 2 with modifications has been used.
 PC1-1, PC1-2a, PC4-1, PC4-3 ESIG GES Consumer Tool

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC1: Glues, hobby use	---	consumer inhalation, long term - systemic	51,15mg/m ³	---
PC1-2a	---	consumer inhalation, long term - systemic	42,60mg/m ³	---
PC1-2b	---	consumer inhalation, long term - systemic	48,80mg/m ³	---
PC1: Glue from spray	---	consumer inhalation, long term - systemic	0,09mg/m ³	---
PC1: Glue from spray	---	consumer oral, long term - systemic	1,23mg/kg	---
PC1: Sealants	---	consumer inhalation, long term - systemic	48,70mg/m ³	---
PC4: Washing car window	---	consumer inhalation, long term - systemic	0,15mg/m ³	---
PC4: Pouring into radiator	---	consumer inhalation, long term - systemic	0,002mg/m ³	---
PC4: Lock de-icer	---	consumer inhalation, long term - systemic	49,05mg/m ³	---
PC9a: Waterborne latex wall paint	---	consumer inhalation, long term - systemic	42,60mg/m ³	---
PC9a: Solvent rich, high solid, water borne paint	---	consumer inhalation, long term - systemic	43,20mg/m ³	---
PC9a: Aerosol spray can	---	consumer oral, long term - systemic	0,65mg/kg	---
PC9a: Aerosol spray can	---	consumer inhalation, long term - systemic	1,30mg/m ³	---
PC9a: Removers	---	consumer inhalation, long term - systemic	48,40mg/m ³	---
PC9c	---	consumer oral, long term - systemic	20,25mg/kg	---
PC15: Waterborne latex wall paint	---	consumer inhalation, long term - systemic	42,60mg/m ³	---
PC15	---	consumer inhalation, long term - systemic	43,20mg/m ³	---
PC15: Aerosol	---	consumer inhalation, long	1,30mg/m ³	---

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spray can		term - systemic		
PC15: Aerosol spray can	---	consumer dermal, long term - systemic	0,65mg/kg	---
PC18	---	consumer inhalation, long term - systemic	44,42mg/m ³	---
PC23	---	consumer inhalation, long term - systemic	32,10mg/m ³	---
PC23	---	consumer inhalation, long term - systemic	0,38mg/m ³	---
PC23	---	consumer dermal, long term - systemic	0,51mg/kg	---
PC31	---	consumer inhalation, long term - systemic	52,10mg/m ³	---
PC31	---	consumer inhalation, long term - systemic	0,38mg/m ³	---
PC31	---	consumer dermal, long term - systemic	0,51mg/kg	---

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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</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>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>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4

Amount used	Daily amount per site	5
	Annual amount per site	100
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	30 %
	Emission or Release Factor: Water	0,01 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,4 %

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC8a, PROC9, PROC10, PROC13)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases	
	Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Stay upwind/ keep distance from source.(PROC7)	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC7)	
	Clean equipment and the work area every day.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Regular inspection and maintenance of equipment and machines.(PROC7)	
	Use suitable eye protection and gloves.	
	Spraying should be carried out in a vented laminar spray booth or using respiratory PPE.(PROC7)	

3. Exposure estimation and reference to its source

Environment

Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0066mg/L	0,0166
---	---	Fresh water sediment	PEC	0,0468mg/kg dwt	0,0308
---	---	Marine water	PEC	0,0009mg/L	0,0216
---	---	Marine sediment	PEC	0,0061mg/kg dwt	0,0402
---	---	Soil	PEC	0,0088mg/kg dwt	0,1241
---	---	Sewage treatment plant (STP)	PEC	0,0313mg/L	0,0031

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Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC13 ECETOC TRA Version 2 with modifications has been used.
 PROC7 Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC7	---	worker inhalation, long term - systemic	0mg/m ³	0
PROC8a, PROC9, PROC10, PROC13	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</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>

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

Amount used	Daily amount for wide dispersive uses	0,05 kg/day
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual amount used per region	308 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	2 %
	Emission or Release Factor: Water	0,000 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d

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Degradation efficiency	87,4 %
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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Frequency of use	< 4 hours/day(PROC8a, PROC8b, PROC9, PROC10, PROC13)
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 47 %)(PROC11)	
	Clean spray booth and exhaust hood completely with every product change.(PROC11)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Stay upwind/ keep distance from source.(PROC11)	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC11)	
	Regular inspection and maintenance of equipment and machines.(PROC11) Clean equipment and the work area every day.(PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear respiratory protection. (Efficiency: 80 %)(PROC11)	
	Wear respiratory protection. or Avoid carrying out operation for more than 2 hours.(PROC11)	
	Spraying should be carried out in a vented laminar spray booth or using respiratory PPE.(PROC11)	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

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Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0035mg/L	0,0087
---	---	Fresh water sediment	PEC	0,0247mg/kg dwt	0,0163
---	---	Marine water	PEC	0,0006mg/L	0,0138
---	---	Marine sediment	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,0028mg/kg dwt	0,0403
---	---	Sewage treatment plant (STP)	PEC	0,0000mg/L	0,0000

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC13 ECETOC TRA Version 2 with modifications has been used.

PROC11 Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC8a, PROC9, PROC10, PROC13	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC8b	---	worker inhalation, long term - systemic	92,63mg/m ³	0,2988
PROC11	With spray booth	worker inhalation, long term - systemic	0mg/m ³	0
PROC11	with local exhaust ventilation, no respiratory protection (RPE)	worker inhalation, long term - systemic	256,10mg/m ³	0,8261
PROC11	With respiratory protection, 80%, or, reduced duration	worker inhalation, long term - systemic	240,60mg/m ³	0,7761

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

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Exposure Scenario

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.

Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2

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 12: Use in Cleaning Agents

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC4: Anti-freeze and de-icing products PC9a: Coatings and paints, thinners, paint removers PC9c: Finger paints PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based products) PC38: Welding and soldering products (with flux coatings or flux cores), flux 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

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

No exposure assessment presented for the environment.

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC4: Washing car window

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	2 minutes/event
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC4 , Washing car window)

2.3 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa

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Amount used	Amount used per event	2000 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	10 minutes/event
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC4 , Pouring into radiator)
	Ensure good ventilation when using indoors e.g. open windows.(PC4, Pouring into radiator)	

2.4 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	4 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	15 minutes/event
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC4 , Lock de-icer)

2.5 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	3750 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	140 minutes/event
Other given operational conditions affecting consumers	Room size	20 m3

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exposure

Covers use under typical household ventilation., Assumes activities are at ambient temperature.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures

Avoid contact with eyes.(PC9a , Waterborne latex wall paint)

2.6 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint

Product characteristics

Concentration of the Substance in Mixture/Article

Covers concentrations up to 4%

Physical Form (at time of use)

liquid

Vapour pressure

16 hPa

Amount used

Amount used per event

1300 g

Frequency and duration of use

Frequency of use

1 Times per day

Frequency of use

140 minutes/event

Other given operational conditions affecting consumers exposure

Room size

20 m3

Covers use under typical household ventilation., Assumes activities are at ambient temperature.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures

Avoid contact with eyes.(PC9a , Solvent rich, high solid, water borne paint)

2.7 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can

Product characteristics

Concentration of the Substance in Mixture/Article

Covers percentage substance in the product up to 25 %.

Physical Form (at time of use)

liquid

Vapour pressure

16 hPa

Amount used

Amount used per event

1300 g

Frequency and duration of use

Frequency of use

1 Times per day

Frequency of use

20 minutes/event

Other given operational conditions affecting consumers exposure

Room size

20 m3

Covers use under typical household ventilation., Assumes activities are at ambient temperature.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures

Avoid contact with eyes.(PC9a , Aerosol spray can)

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2.8 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 4%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	2000 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	30 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9a , Removers (paint-, glue-, wall paper-, sealant-remover))

2.9 Contributing scenario controlling consumer exposure for: PC9c: Finger paints

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event (swallowed)	1,35 g
Frequency and duration of use	Frequency of use	1 Times per day
Other given operational conditions affecting consumers exposure	Room size	30 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC9c , Finger paints)

2.10 Contributing scenario controlling consumer exposure for: PC35: Laundry and dish washing products

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
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	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	30 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC35 , Laundry and dish washing products)
2.11 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	Concentration of substance in product: 0% - 6%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	880 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC35 , Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))
2.12 Contributing scenario controlling consumer exposure for: PC35: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
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Amount used	Amount used per event	30 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	25 minutes/event
Other given operational conditions affecting consumers exposure	Room size	10 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC35 , Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))

2.13 Contributing scenario controlling consumer exposure for: PC38

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	12 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	1 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC38)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

PC9a, PC35, PC38 ConsExpo 4.1

PC4, PC9c, PC35 ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC4	---	consumer inhalation, long term - systemic	0,15mg/m ³	---

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PC4	---	consumer inhalation, long term - systemic	0,002mg/m ³	---
PC4	---	consumer inhalation, long term - systemic	49,05mg/m ³	---
PC9a	---	consumer inhalation, long term - systemic	42,60mg/m ³	---
PC9a	---	consumer inhalation, long term - systemic	43,20mg/m ³	---
PC9a	---	consumer inhalation, long term - systemic	1,30mg/m ³	---
PC9a	---	consumer dermal, long term - systemic	0,65mg/kg	---
PC9a	---	consumer inhalation, long term - systemic	48,40mg/m ³	---
PC9c	---	consumer dermal, long term - systemic	20,25mg/kg	---
PC35	---	consumer inhalation, long term - systemic	32,40mg/m ³	---
PC35	---	consumer inhalation, long term - systemic	42,40mg/m ³	---
PC35	---	consumer inhalation, long term - systemic	6,62mg/m ³	---
PC38	---	consumer inhalation, long term - systemic	45,12mg/m ³	---

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC11: Non industrial spraying
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b

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	As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.
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2.2 Contributing scenario controlling worker exposure for: PROC5, PROC11

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Exposure duration per day	240 min(PROC5)
	Exposure duration per day	480 min(PROC11)
	Frequency of use	5 days/week
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	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	Ensure that a spraying booth is used.(PROC11)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 47 %)(PROC11)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Clean equipment and the work area every day. Regular inspection and maintenance of equipment and machines.(PROC11)	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC11)	

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Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear respiratory protection. (Efficiency: 80 %)(PROC11)

3. Exposure estimation and reference to its source

Environment

Qualitative approach used to conclude safe use.

Workers

PROC5 ECETOC TRA Version 2 with modifications has been used.
PROC11 Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC11	with local exhaust ventilation	worker inhalation, long term - systemic	137,02mg/m ³	0,442
PROC11	With respiratory protection, 80%	worker inhalation, long term - systemic	240,60mg/m ³	0,7761

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

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.
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
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.
For scaling see: <https://www.stoffenmanager.nl/default.aspx>

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 agrochemicals

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC27: Plant protection 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

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

2.2 Contributing scenario controlling consumer exposure for: PC27

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	0,3 g
Frequency and duration of use	Frequency of use	1 Times per day
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.
	Risk Management Measures are based on qualitative risk characterisation.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ESIG GES Consumer Tool

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
---	---	consumer oral, long term - systemic	15mg/kg bw/day	0,6

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

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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Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
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 as lubricants

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>PROC7: Industrial spraying</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC17: Lubrication at high energy conditions and in partly open process</p> <p>PROC18: Greasing at high energy conditions</p>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4

Amount used	Daily amount per site	5
	Annual amount per site	100
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,3 %
	Emission or Release Factor: Water	0,1 %
	Emission or Release Factor: Soil	0,1 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,5 %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC18, PROC17

Product characteristics	Concentration of the	Covers the percentage of the substance in the
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	Substance in Mixture/Article	product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Frequency of use	< 4 hours/day(PROC8a, PROC8b, PROC9, PROC10, PROC13)
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC8a, PROC10, PROC13)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 95 %)(PROC17, PROC18)	
	Ensure that a spraying booth is used.(PROC7)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases	
	Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC7)	
	Clean equipment and the work area every day.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Regular inspection and maintenance of equipment and machines.(PROC7)	
	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0348mg/L	0,0869
---	---	Fresh water sediment	PEC	0,2457mg/kg dwt	0,1616
---	---	Marine water	PEC	0,0037mg/L	0,0920
---	---	Marine sediment	PEC	0,0260mg/kg dwt	0,1710

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---	---	Soil	PEC	0,0254mg/kg dwt	0,3633
---	---	Sewage treatment plant (STP)	PEC	0,3127mg/L	0,0313

Workers

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	consumer inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	consumer inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	consumer inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	consumer inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC7	---	consumer inhalation, long term - systemic	0mg/m ³	0,0000
PROC8a, PROC9, PROC10, PROC13	---	consumer inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC8b	---	consumer inhalation, long term - systemic	4,63mg/m ³	0,0149
PROC17	---	consumer inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC17	Indoor use.	consumer inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC18	---	consumer inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC18	Indoor use.	consumer inhalation, long term - systemic	15,44mg/m ³	0,0498

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

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.

Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2

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

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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 16: Use as lubricants

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>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</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>PROC17: Lubrication at high energy conditions and in partly open process</p> <p>PROC18: Greasing at high energy conditions</p> <p>PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems</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> <p>ERC9a: Wide dispersive indoor use of substances in closed systems</p> <p>ERC9b: Wide dispersive outdoor use of substances in closed systems</p>

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC9a, ERC9b

Amount used	Daily amount for wide dispersive uses	0,02 kg/day
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual amount used per region	170 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1 %
	Emission or Release Factor: Water	1 %
	Emission or Release	1 %

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	Factor: Soil	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,5 %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Frequency of use	< 4 hours/day(PROC8a, PROC8b, PROC9, PROC10, PROC13)
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC11, PROC17, PROC18)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC17, PROC18)	
	Clean spray booth and exhaust hood completely with every product change.(PROC11)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 47 %)(PROC11)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Stay upwind/ keep distance from source.(PROC11)	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC11)	
	Clean equipment and the work area every day.(PROC11)	
	Regular inspection and maintenance of equipment and machines.(PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	
	Spraying should be carried out in a vented laminar spray booth or using respiratory PPE.(PROC11)	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear respiratory protection. (Efficiency: 80 %)(PROC11)	
	Wear respiratory protection. or	

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Avoid carrying out operation for more than 2 hours.(PROC11)
 If above technical/organisational control measures are not feasible, then adopt following PPE:
 Wear respiratory protection. (Efficiency: 90 %)(PROC17, PROC18)

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0035mg/L	0,0087
---	---	Fresh water sediment	PEC	0,0247mg/kg dwt	0,0163
---	---	Marine water	PEC	0,0006mg/L	0,0138
---	---	Marine sediment	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,0028mg/kg dwt	0,0403
---	---	Sewage treatment plant (STP)	PEC	0,0000mg/L	0,0000

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18, PROC20

ECETOC TRA Version 2 with modifications has been used.

PROC11 Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC4	---	worker inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC8a, PROC9, PROC10, PROC13	---	worker inhalation, long term - systemic	182,25mg/m ³	0,5976
PROC8b	---	worker inhalation, long term - systemic	92,63mg/m ³	0,2988

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PROC11	With spray booth	worker inhalation, long term - systemic	0mg/m ³	0
PROC11	with local exhaust ventilation	worker inhalation, long term - systemic	256,1mg/m ³	0,8261
PROC11	With respiratory protection, or, reduced duration	worker inhalation, long term - systemic	240,6mg/m ³	0,7761
PROC17	with local exhaust ventilation, or, reduced duration	worker inhalation, long term - systemic	123,50mg/m ³	0,3984
PROC17	with local exhaust ventilation, or, reduced duration	worker inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC18	with local exhaust ventilation, or, reduced duration	worker inhalation, long term - systemic	123,50mg/m ³	0,394
PROC18	with local exhaust ventilation, or, With respiratory protection	worker inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC20	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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.
 Not applicable.

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 17: Use as lubricants

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants PC24: Lubricants, greases, release products PC31: Polishes and wax blends 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 ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	9 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC1 , Glues, hobby use)

2.3 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	6390 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	6 Hours/event

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Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.(PC1, Glues DIY-use (carpet glue, tile glue, wood parquet glue))	

2.4 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Tier 2: ConsExpo estimates

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Covers use amounts up to 9000g	
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	85 minutes/event
Other given operational conditions affecting consumers exposure	Room size	53 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC1 , Glues DIY-use (carpet glue, tile glue, wood parquet glue))

2.5 Contributing scenario controlling consumer exposure for: PC1: Glue from spray

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related	Consumer Measures	Avoid contact with skin.(PC1 , Glue from spray)

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to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

2.6 Contributing scenario controlling consumer exposure for: PC1: Sealants

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	390 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with skin.(PC1 , Sealants)

2.7 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	550 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC31 , Polishes, wax / cream (floor, furniture, shoes))

2.8 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)

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Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	550 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC31 , Polishes, spray (furniture, shoes))

2.9 Contributing scenario controlling consumer exposure for: PC35: Laundry and dish washing products

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	30 minutes/event
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC35 , Laundry and dish washing products)

2.10 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	Concentration of substance in product: 0% - 6%
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	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	880 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	4 Hours/event
Other given operational conditions affecting consumers exposure	Room size	58 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC35 , Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners))

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	16 hPa
Amount used	Amount used per event	30 g
Frequency and duration of use	Frequency of use	1 Times per day
	Frequency of use	25 minutes/event
Other given operational conditions affecting consumers exposure	Room size	10 m ³
	Covers use under typical household ventilation., Assumes activities are at ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid contact with eyes.(PC35 , Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners))

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

PC1, PC31, PC35 ConsExpo 4.1

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PC1, PC35 ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC1	---	consumer inhalation, long term - systemic	51,15mg/m ³	---
PC1	---	consumer inhalation, long term - systemic	42,60mg/m ³	---
PC1	---	consumer inhalation, long term - systemic	48,80mg/m ³	---
PC1	---	consumer dermal, long term - systemic	1,23mg/kg	---
PC1	---	consumer inhalation, long term - systemic	0,09mg/m ³	---
PC1	---	consumer inhalation, long term - systemic	48,70mg/m ³	---
PC31	---	consumer inhalation, long term - systemic	52,1mg/m ³	---
PC31	---	consumer dermal, long term - systemic	0,51mg/kg	---
PC31	---	consumer inhalation, long term - systemic	0,38mg/m ³	---
PC35	---	consumer inhalation, long term - systemic	32,40mg/m ³	---
PC35	---	consumer inhalation, long term - systemic	42,40mg/m ³	---
PC35	---	consumer inhalation, long term - systemic	6,62mg/m ³	---

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

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.

Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2

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 18: Use in laboratories

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Daily amount for wide dispersive uses	0,002 kg
	Annual amount used per region	16 ton(s)/year
	Fraction of Regional tonnage used locally:	0,0005
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	50 %
	Emission or Release Factor: Water	50 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,5 %

2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15

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

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	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Frequency of use	< 4 hours/day(PROC10)
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes a good basic standard of occupational hygiene is implemented., Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0035mg/L	0,0088
---	---	Fresh water sediment	PEC	0,0248mg/kg dwt	0,0163
---	---	Marine water	PEC	0,0006mg/L	0,0138
---	---	Marine sediment	PEC	0,0039mg/kg dwt	0,0257
---	---	Soil	PEC	0,0028mg/kg dwt	0,0403
---	---	Sewage treatment plant (STP)	PEC	0,0001mg/L	0,0000

Workers

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC10	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC15	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996

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

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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.
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
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.
not applicable

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1. Short title of Exposure Scenario 19: Use in metal working fluids / rolling oils

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
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>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC7: Industrial spraying</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC17: Lubrication at high energy conditions and in partly open process</p>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC4

Amount used	Daily amount per site	5
	Annual amount per site	100
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0,6 %
	Emission or Release Factor: Water	0,1 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87, %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17

Product characteristics	Concentration of the Substance in	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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	Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
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	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17)	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC8a, PROC9, PROC10, PROC13)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 97 %)(PROC8b)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 95 %)(PROC17)	
	Ensure that a spraying booth is used.(PROC7)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases	
	Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC7)	
	Regular inspection and maintenance of equipment and machines.(PROC7)	
Conditions and measures related to personal protection, hygiene and health evaluation	Clean equipment and the work area every day.(PROC7)	
	Use suitable eye protection and gloves.	

3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0348mg/L	0,0869
---	---	Fresh water sediment	PEC	0,2457mg/kg dwt	0,1616
---	---	Marine water	PEC	0,0037mg/L	0,0920
---	---	Marine sediment	PEC	0,0260mg/kg dwt	0,1710
---	---	Soil	PEC	0,0254mg/kg dwt	0,3633

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---	---	Sewage treatment plant (STP)	PEC	0,3127mg/L	0,0313
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Workers

PROC1, PROC2, PROC3, PROC5, PROC7, PROC8a, PROC9, PROC10, PROC12, PROC17 ECETOC TRA Version 2 with modifications has been used.

PROC8b Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	30,88mg/m ³	0,0996
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC5	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC7	---	worker inhalation, long term - systemic	0mg/m ³	0
PROC8a, PROC9, PROC10, PROC12	---	worker inhalation, long term - systemic	15,44mg/m ³	0,0498
PROC8b	---	worker inhalation, long term - systemic	4,63mg/m ³	0,0149
PROC17	---	worker inhalation, long term - systemic	154,38mg/m ³	0,4980
PROC17	---	worker inhalation, long term - systemic	15,44mg/m ³	0,4980

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

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.

Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2

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.

Not applicable.

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 20: Use in metal working fluids / rolling oils

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>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>PROC17: Lubrication at high energy conditions and in partly open process</p>
Environmental Release Categories	<p>ERC8a: Wide dispersive indoor use of processing aids in open systems</p> <p>ERC8b: Wide dispersive indoor use of reactive substances in open systems</p>

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Daily amount for wide dispersive uses	14 kg
	Annual amount used per region	100000 ton(s)/year
	Fraction of Regional tonnage used locally:	0,0005
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	40 %
	Emission or Release Factor: Water	5 %
	Emission or Release Factor: Soil	5 %
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	municipal

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Flow rate of sewage treatment plant effluent	2.000 m3/d
Degradation efficiency	87, %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	5 - 100 hPa
Amount used	not applicable	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Frequency of use	< 4 hours/day(PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13)
Other operational conditions affecting workers exposure	Indoor/Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Indoor(PROC11, PROC17)	
Technical conditions and measures to control dispersion from source towards the worker	Ensure that a spraying booth is used.(PROC11)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 47 %)(PROC11)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC17)	
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure minimization of manual phases Avoid direct contact with the chemical/the product/the preparation by establishing organisational measures.	
	Clean equipment and the work area every day.	
	Regular inspection and maintenance of equipment and machines.(PROC11)	
	Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).(PROC11)	
	Regular inspection and maintenance of equipment and machines.(PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Clean equipment and the work area every day.(PROC11)	
	Use suitable eye protection and gloves.	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear respiratory protection. (Efficiency: 80 %)(PROC11)	
	Wear respiratory protection. or Avoid carrying out operation for more than 2 hours.(PROC11)	
	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear respiratory protection. (Efficiency: 90 %)(PROC17)	

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3. Exposure estimation and reference to its source

Environment

ECETOC TRA Version 2 with modifications has been used.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0,0078mg/L	0,0195
---	---	Fresh water sediment	PEC	0,0550mg/kg dwt	0,0362
---	---	Marine water	PEC	0,0010mg/L	0,0245
---	---	Marine sediment	PEC	0,0069mg/kg dwt	0,0456
---	---	Soil	PEC	0,0060mg/kg dwt	0,0845
---	---	Sewage treatment plant (STP)	PEC	0,0428mg/L	0,0043

Workers

PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC10, PROC13, PROC17 ECETOC TRA Version 2 with modifications has been used.

PROC11 Stoffenmanager V4.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	worker inhalation, long term - systemic	0,03mg/m ³	0,0001
PROC2	---	worker inhalation, long term - systemic	61,75mg/m ³	0,1992
PROC3	---	worker inhalation, long term - systemic	77,19mg/m ³	0,2490
PROC5, PROC8a, PROC10	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC8b	---	worker inhalation, long term - systemic	92,63mg/m ³	0,2988
PROC11	With spray booth	worker inhalation, long term - systemic	0mg/m ³	0
PROC11	no respiratory protection (RPE)	worker inhalation, long term - systemic	256,10mg/m ³	0,8261
PROC11	reduced duration, or, With respiratory protection, 80%	worker inhalation, long term - systemic	240,60mg/m ³	0,7761

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PROC13	---	worker inhalation, long term - systemic	185,25mg/m ³	0,5976
PROC17	with local exhaust ventilation, or, reduced duration	worker inhalation, long term - systemic	123,50mg/m ³	0,3984
PROC17	with local exhaust ventilation, or, with RPE (90%)	worker inhalation, long term - systemic	154,38mg/m ³	0,4980

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

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.
 Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
 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.
 Not applicable.

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 21: Other consumer uses

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC28: Perfumes, fragrances PC39: Cosmetics, personal care 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

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

2.2 Contributing scenario controlling consumer exposure for: PC28, PC39

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer exposure for PC39 (cosmetic products) is regulated by the Cosmetic Directive 76/768/EEC and therefore out of scope for this section.
--	---

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ESIG GES Consumer Tool

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
---	---	consumer oral, long term - systemic	15mg/kg bw/day	0,6

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

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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