Dr. Grogg Chemie AG
Gümligentalstrasse 83
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COVER SHEET FOR THE SAFETY DATA SHEET

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Item number: G115

Trade name: Dichloromethane pure

Supplier:
Dr. Grogg Chemie AG
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Emergency number:
24-hour emergency number: 145
Help with poisoning. Tox Info Suisse provides free medical advice round the clock in cases of poisoning or suspected poisoning.

Tox Info Suisse
Freiestrasse 16
8032 Zürich
Tel. +41 (0) 44 251 51 51
www.toxinfo.ch

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

DICHLORMETHAN REIN / METHYLENCHLORID

Version 3.0 Print Date 24.11.2026

Revision date / valid from 22.12.2023

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

1.1. Product identifier

Trade name	:	DICHLORMETHAN REIN / METHYLENCHLORID
Substance name	:	dichloromethane
Index-No.	:	602-004-00-3
CAS-No.	:	75-09-2
EC-No.	:	200-838-9
EU REACH-Reg. No.	:	01-2119480404-41-xxxx

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

Use of the Substance/Mixture	:	Identified use: See table in front of appendix for a complete overview of identified uses.
Use of the Substance/Mixture	:	Chemical industry in general, Solvent
Uses advised against	:	At this moment we have not identified any uses advised against
Remarks	:	Before referring to any Exposure Scenario attached to this Safety Data Sheet please check the grade of the product: the Exposure Scenarios presented are not related to all product grade
Remarks	:	

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag Schweizerhall AG Elsässerstrasse 231 CH 4002 Basel
Telephone	:	+41 (0)58 344 80 00
Telefax	:	+41 (0)58 344 82 08
E-mail address	:	doku@brenntag.ch
Responsible/issuing person	:	Abteilung Produktsicherheit

1.4. Emergency telephone number

Emergency telephone number	:	Swiss Toxicological Information Centre CH-8032 ZÜRICH Tel.: +41 (0) 44 251 51 51 National emergency call: 145

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Skin irritation	Category 2	---	H315
Eye irritation	Category 2	---	H319
Carcinogenicity	Category 2	---	H351
Specific target organ toxicity - single exposure	Category 3	Central nervous system	H336

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

Most important adverse effects

Human Health : See section 11 for toxicological information.

Physical and chemical hazards : See section 9/10 for physicochemical information.

Potential environmental effects : See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :



Signal word : Warning

Hazard statements :

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

Precautionary statements

Prevention :

P201	Obtain special instructions before use.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response	:	P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
		P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Hazardous components which must be listed on the label:

- dichloromethane

2.3. Other hazards

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

Ecological information: No information available about endocrine disruption properties for environment.

Toxicological information: No information available about endocrine disruption properties for human health.

When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
dichloromethane			
Index-No. : 602-004-00-3 CAS-No. : 75-09-2 EC-No. : 200-838-9 EU REACH-Reg. No. : 01-2119480404-41-xxxx	>= 90 - <= 100	Skin Irrit.2 Eye Irrit.2 Carc.2 STOT SE3	H315 H319 H351 H336

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	: Take off all contaminated clothing immediately.
If inhaled	: Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artificial respiration. If unconscious, place in recovery position and seek medical advice. If symptoms call a physician.
In case of skin contact	: After contact with skin, wash immediately with plenty of water. If symptoms call a physician.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
If swallowed	: Rinse mouth with water. Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.
Protection of First Aid Responders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing.

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

Symptoms	: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. See Section 11 for more detailed information on health effects and symptoms.
Effects	: See Section 11 for more detailed information on health effects and symptoms.

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

Treatment	: Treat symptomatically.Symptoms may be delayed.The exposed person may need to be kept under medical surveillance for 48 hours.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, foam, dry powder or CO2.
Unsuitable extinguishing media	: High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Incomplete combustion may form toxic pyrolysis products.
Hazardous combustion products	:	Carbon monoxide, Hydrogen chloride gas, Phosgene, Chlorine

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear personal protective equipment.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Keep away unprotected persons. Ensure adequate ventilation. Avoid contact with skin and eyes. Do not breathe vapours or spray mist.

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. Avoid formation of aerosol. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking,

eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Keep in a well-ventilated place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs.
German storage class	:	6.1D Non-combustible substances of acute toxicity, category 3 / hazardous substances that are toxic or produce chronic effects
Suitable packaging materials	:	Stainless steel
Unsuitable packaging materials	:	, Aluminium, Zinc, plastic materials

7.3. Specific end use(s)

Specific use(s)	:	Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	dichloromethane	CAS-No. 75-09-2
Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		

DNEL Workers, Long-term - systemic effects, Inhalation	:	176 mg/m3
DNEL Workers, Long-term - systemic effects, Skin contact	:	12 mg/kg bw/day
DNEL Consumers, Long-term - systemic effects, Inhalation	:	44 mg/m3
DNEL Consumers, Long-term - systemic effects, Skin contact	:	5,82 mg/kg bw/day

DNEL

Consumers, Long-term - systemic effects, Ingestion	:	0,06 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	0,31 mg/l
Marine water	:	0,031 mg/l
Intermittent releases	:	0,27 mg/l
Sewage treatment plant (STP)	:	26 mg/l
Fresh water sediment	:	2,57 mg/kg d.w.
Marine sediment	:	0,262 mg/kg d.w.
Soil	:	0,33 mg/kg d.w.

Other Occupational Exposure Limit Values

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Time Weighted Average (TWA):
100 ppm, 353 mg/m3
Indicative

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Skin designation:
Can be absorbed through the skin.

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Short Term Exposure Limit (STEL):
200 ppm, 706 mg/m3
Indicative

Switzerland. OELs. Limit Values at the Workplace, as per SUVA, as amended, Skin designation:
Can be absorbed through the skin.

Switzerland. OELs. Limit Values at the Workplace, as per SUVA, as amended, Time Weighted Average (TWA):
50 ppm, 177 mg/m3

Switzerland. OELs. Limit Values at the Workplace, as per SUVA, as amended, Short Term Exposure Limit (STEL):
200 ppm, 706 mg/m3

Biological Exposure Indices

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA), as amended, Carboxyhemoglobin, Blood
5 %, Sampling time: End of exposure / end of shift.
Environmental effects, Unspecified parameter
Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA), as amended, dichloromethane, Blood
0,5 mg/l, Sampling time: End of exposure / end of shift.
Acute Toxic effect
EU. Biological Limit/Guidance Values (BLVs/BGVs), Scientific Committee on Occupational Exposure Limit Values (SCOELs), as amended, methylene chloride, Blood
1 mg/l
EU. Biological Limit/Guidance Values (BLVs/BGVs), Scientific Committee on Occupational Exposure Limit Values (SCOELs), as amended, methylene chloride, Urine
0,3 mg/l
EU. Biological Limit/Guidance Values (BLVs/BGVs), Scientific Committee on Occupational Exposure Limit Values (SCOELs), as amended, Carboxyhemoglobin, Hemoglobin in blood
4 %

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	In case of insufficient ventilation, wear suitable respiratory equipment. When aerosol or mist is formed use suitable respiratory protection. Required, if exposure limit is exceeded (e.g. OEL). Respiratory protection complying with EN 141. Recommended Filter type:AX In case of intensive or longer exposure use self-contained breathing apparatus.

Hand protection

Advice	:	Wear suitable gloves. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Protective gloves should be replaced at first signs of wear.
Material	:	fluorocarbon rubber
Break through time	:	8 h
Glove thickness	:	0,4 mm
Material	:	(PE=polyethylene; EVAL=ethylene-vinyl alcohol-copolymer)
Break through time	:	8 h
Glove thickness	:	0,4 mm

Eye protection

Advice : Safety goggles

Skin and body protection

Advice : Wear personal protective equipment.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.
If the product contaminates rivers and lakes or drains inform respective authorities.
If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	:	liquid
Physical state	:	liquid
Colour	:	colourless
Odour	:	sweet
Odour Threshold	:	250 ppm
Solidification point	:	-97 °C (1013 hPa)
Boiling point/boiling range	:	40 °C (1013 hPa)
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	22 %(V)
Lower explosion limit / Lower flammability limit	:	13 %(V)
Flash point	:	unmeasurable
Auto-ignition temperature	:	605 °C (1013 hPa)
Decomposition temperature	:	> 120 °C
Self-Accelerating decomposition temperature (SADT)	:	No data available
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	0,42 mPa.s (25 °C)
Viscosity, kinematic	:	0,31 mm2/s (25 °C)

Flow time	:	No data available
Solubility(ies)		
Water solubility	:	20 g/l (20 °C)
Solubility in other solvents	:	Solvent: Ethanol miscible
Dissolution Rate	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: 1,25
Dispersion Stability	:	No data available
Vapour pressure	:	476 hPa (20 °C)
		584 hPa (25 °C)
		709 hPa (30 °C)
Relative density	:	No data available
Density	:	1,33 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	2,93 (25 °C)
Particle characteristics		
No data available		

9.2 Other information

Explosives	:	Not explosive
Evaporation rate	:	1,8

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Conditions to avoid : Heat, flames and sparks.Exposure to sunlight.

Thermal decomposition : > 120 °C

10.5. Incompatible materials

Materials to avoid : Aluminium, Zinc, Oxidizing agents, Strong acids and strong bases, Magnesium, Alkali metals, Amines

10.6. Hazardous decomposition products

Hazardous decomposition products : Hydrogen chloride gas, Carbon monoxide, Phosgene, Chlorine

SECTION 11: Toxicological information

11.1. Information on the hazard classes within the meaning of Regulation (EC) No. 1272/2008

Component:	dichloromethane	CAS-No. 75-09-2
Acute toxicity		
Oral		
LD50	:	> 2000 mg/kg (Rat, male and female) (OECD Test Guideline 401)
Inhalation		
LC50	:	86 mg/l (Mouse; 4 h; vapour)
Dermal		
LD50	:	> 2000 mg/kg (Rat, male and female) (OECD Test Guideline 402)
Irritation		
Skin		
Result	:	Irritating to skin. (Rabbit) (OECD Test Guideline 404)Prolonged skin contact may defat the skin and produce dermatitis. May cause irritation of the mucous membranes.
Eyes		
Result	:	Severe eye irritation
Sensitisation		
Result	:	not sensitizing (Local lymph node test; Dermal; Mouse) (OECD Test Guideline 429)

CMR effects

CMR Properties

Carcinogenicity	:	Suspected of causing cancer.
Mutagenicity	:	Results of tests with experimental animals from genetic toxicity studies were negative and positive. Based on available data, the classification criteria are not met.
Teratogenicity	:	Causes developmental effects in animals at high, maternally toxic doses.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.

Specific Target Organ Toxicity

Single exposure

Inhalation	:	Target Organs: Central nervous systemMay cause drowsiness or dizziness.

Repeated exposure

Remarks	:	No data available

Other toxic properties

Aspiration hazard

No data available,

Further information

Other relevant toxicity information	:	Inhalation of high vapour concentrations can cause CNS-depression and narcosis. Risk of serious damage to the lungs (by inhalation). Liver injury may occur. Ingestion causes damage of central nervous system, liver, kidneys, blood and bone marrow. Limited evidence of a carcinogenic effect.

11.2. Information on other hazards

Data for the product

Endocrine disrupting properties

Assessment	:	No information available about endocrine disruption properties for human health.

Component: dichloromethane CAS-No. 75-09-2

Endocrine disrupting properties

Assessment	:	No information available about endocrine disruption properties

for human health.

SECTION 12: Ecological information

12.1. Toxicity

Component:	dichloromethane	CAS-No. 75-09-2
Acute toxicity		
Fish		
LC50	:	193 mg/l (Pimephales promelas; 96 h) (flow-through test)
Toxicity to daphnia and other aquatic invertebrates		
LC50	:	27 mg/l (Daphnia magna (Water flea); 48 h) (static test; OECD Test Guideline 202)
algae		
EbC50	:	> 662 mg/l (Pseudokirchneriella subcapitata (green algae); 96 h) (End point: Biomass; OECD Test Guideline 201)
Bacteria		
EC50	:	2590 mg/l (activated sludge; 40 min) (static test; OECD Test Guideline 209)
Chronic toxicity		
Fish		
NOEC	:	83 mg/l (Pimephales promelas (fathead minnow); 28 d) (flow-through test)

12.2. Persistence and degradability

Component:	dichloromethane	CAS-No. 75-09-2
Persistence and degradability		
Persistence		

Result	:	No data available

Biodegradability

Result	:	68 % (aerobic; Exposure Time: 28 d)(OECD Test Guideline 301D)Readily biodegradable.The 10 day time window criterion is fulfilled.

12.3. Bioaccumulative potential

Component:	dichloromethane	CAS-No. 75-09-2

Bioaccumulation

Result	:	log Kow 1,25 (20 °C; pH 7)
	:	BCF: 2 - 40; (Fish) The product has low potential bioaccumulation.

12.4. Mobility in soil

Component:	dichloromethane	CAS-No. 75-09-2

Mobility

Water	:	The product is water soluble.
Soil	:	Highly mobile in soils

Distribution among environmental compartments

Adsorption/Soil,	:	Koc: 46,8, estimated

12.5. Results of PBT and vPvB assessment

Data for the product

Results of PBT and vPvB assessment

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

Component:	dichloromethane	CAS-No. 75-09-2

Results of PBT and vPvB assessment

Result	:	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6. Endocrine disrupting properties

Data for the product		
Endocrine disrupting potential	:	No information available about endocrine disruption properties for environment.

Component:	dichloromethane	CAS-No. 75-09-2
Endocrine disrupting potential	:	No information available about endocrine disruption properties for environment.

12.7. Other adverse effects

Data for the product		
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.
Result	:	

Component:	dichloromethane	CAS-No. 75-09-2
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services. This product shall be disposed of or recovered in compliance with Directive 2008/98/EC on waste as lastly amended.
Contaminated packaging	:	Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.
European Waste Catalogue Number	:	No waste code can be defined for this product in accordance with the Ordinance on the Movement of Waste (VeVA), as the intended use dictates the assignment. The waste code is established in consultation with a regional waste disposer, such as: Brenntag Schweizerhall AG Lohnmatte 1 4573 Lohn-Ammannsegg Switzerland

Phone: +41 58 344 84 00
infolohn@brenntag.ch

SECTION 14: Transport information

14.1. UN number or ID number

1593

14.2. UN proper shipping name

ADR : DICHLOROMETHANE
RID : DICHLOROMETHANE
IMDG : DICHLOROMETHANE

14.3. Transport hazard class(es)

ADR-Class (Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)	: 6.1 6.1; T1; 60; (E)
RID-Class (Labels; Classification Code; Hazard Identification Number)	: 6.1 6.1; T1; 60
IMDG-Class (Labels; EmS)	: 6.1 6.1; F-A, S-A

14.4. Packaging group

ADR : III
RID : III
IMDG : III

14.5. Environmental hazards

Environmentally hazardous according to ADR	: no
Environmentally hazardous according to RID	: no
Marine Pollutant according to IMDG-Code	: no

14.6. Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Data for the product

CPID	:	296611-46
Threshold quantity MAO	:	(Don't have volume threshold according GHS criteria (2015).)
Ordinance protection of air	:	LRV (CH): chapter 72 - class 1

Ordinance on Chemical Risik Reduction:

Annex	:	Annex 1.10: Carcinogenic, mutagenic and reproductive toxic substances Annex 1.11: Hazardous liquids Annex 2.1: Laundry detergents Annex 2.2: Detergents Annex 2.3: Solvents
Specific labeling	:	Only for professional users
Other regulations	:	Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Articles 5 and 6 of the EAER regulation on hazardous work and young people (SR 822.115.2): Young people undergoing basic vocational training may only work with this product if the relevant training ordinance makes provision for them to do so with a view to enabling them to achieve their training objectives and if the preconditions for the training plan have been met and the applicable age restrictions have been complied with. Young people who are not completing any basic vocational training are not permitted to work with this product. Employees of either sex who are under 18 years old are classed as young people. Article 13 Maternity ordinance (SR 822.111.52): Expectant and nursing mothers are only permitted to come into contact with this product during the course of their work if, based on a risk assessment carried out in accordance with Article 63 of Ordinance 1 on the Employment Act (ArGV 1) (SR 822.111), the chemicals in question have been found not to cause any specific harm to mothers or children or if such harm can be ruled out by taking appropriate protective measures.

Component: dichloromethane CAS-No. 75-09-2

EU. Chemicals Subject to PIC Procedure: Regulation 649/2012/EU on export and import of dangerous chemicals, as amended	:	; The substance/mixture does not fall under this legislation.
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation	:	Point Nos.: , 3; Listed

1907/2006/EC)

Point Nos.: , 59; Listed
EC Number: , 200-838-9
Point Nos.: , 75; Listed

Notification status
dichloromethane:

Regulatory List	Notification	Notification number
AICS	YES	
DCS (JP)	YES	(2)-36
DSL	YES	
EINECS	YES	200-838-9
ENCS (JP)	YES	(2)-36
IECSC	YES	
INSQ	YES	
ISHL (JP)	YES	(2)-36
JEX (JP)	YES	(2)-36
JP MON3	YES	(2)-36
KECI (KR)	YES	KE-23893
NZIOC	YES	HSR001540
ONT INV	YES	
PICCS (PH)	YES	
TCSI	YES	
TH INV	YES	55-1-05831
TH INV	YES	2903.12
TSCA	YES	
VN INVL	YES	

15.2. Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

Full text of the Notes referred to under section 3.

Abbreviations and Acronyms

AU AIICL	Australia. Industrial Chemicals Act (AIIC) List
BCF	bioconcentration factor

BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
DSL	Canada. Environmental Protection Act, Domestic Substances List
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS (JP)	Japan. Kashin-Hou Law List
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IECSC	China. Inventory of Existing Chemical Substances
INSQ	Mexico. National Inventory of Chemical Substances
ISHL (JP)	Japan. Inventory of Industrial Safety & Health
KECI (KR)	Korea. Existing Chemicals Inventory
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NDSL	Canada. Environmental Protection Act. Non-Domestic Substances List
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NZIOC	New Zealand. Inventory of Chemicals
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
ONT INV	Canada. Ontario Inventory List
PBT	persistent, bioaccumulative and toxic
PHARM (JP)	Japan. Pharmacopoeia Listing
PICCS (PH)	Philippines. Inventory of Chemicals and Chemical Substances
PNEC	predicted no-effect concentration
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
UK REACH Auth. No.:	UK REACH Authorisation Number
UK REACH AuthAppC. No.	UK REACH Authorisation Application Consultation Number
UK REACH-Reg.No	UK REACH Registration Number
STOT	specific target organ toxicity

SPM	Synthetic Polymer Microparticles
SVHC	substance of very high concern
TCSI	Taiwan. Existing Chemicals Inventory
TH INV	Thailand. Existing Chemicals Inventory from FDA
TSCA	US. Toxic Substances Control Act
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
VN INVL	Vietnam. National Chemical Inventory

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

No.	Short title	REACH Auth. No.:/ REACH AuthAppC. No.	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	NA	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1	NA	ES8529
2	Formulation & (re)packing of substances and mixtures	NA	3	10	NA	3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1946
3	Formulation & (re)packing of substances and mixtures	NA	22	NA	NA	8a, 8b, 9	8a, 8d	NA	ES1989
4	Use in coatings	NA	3	11, 18	NA	7, 10	4	NA	ES1957
5	Use in coatings	NA	22	NA	NA	10, 11	8a, 8d	NA	ES1968
6	Use in cleaning agents	NA	3	5, 7, 12, 13, 17	35	2, 3, 4, 7, 10, 13	4, 7	NA	ES1960
7	Use in cleaning agents	NA	22	NA	35	10, 11, 13	8a, 8d	NA	ES1971
8	Use in agrochemicals	NA	22	NA	8, 27	11	8a, 8d	NA	ES1979
9	Use as Functional Fluids	NA	3	NA	16	1, 2, 3, 4	7	NA	ES1966
10	Use in laboratories	NA	22	24	21	10, 15	8a	NA	ES2013
11	Use as extraction agent and/or processing aid	NA	3	5, 9	NA	1, 2, 3, 4, 10, 15	4	NA	ES1953
12	Use as an intermediate	NA	3	8, 9	19	1, 2, 3, 4, 8a, 8b, 15	6a	NA	ES1944
13	Use as blowing agents	NA	3	NA	NA	1, 2, 3, 4, 8b, 9, 12	4	NA	ES1964
14	Consumer use	NA	21	NA	1, 8, 9a, 9b, 27, 35, 39	NA	8a, 8d	NA	ES2015

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: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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	Maximum daily site tonnage (kg/day):	8570 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Municipal sewage treatment is not assumed.	
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 percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion	General exposures (closed systems)	Handle substance within a closed system.(PROC1, PROC2)

from source towards the worker	Continuous process With sample collection	
	General exposures (closed systems) Use in contained batch processes	Handle substance within a predominantly closed system provided with extract ventilation. Provide extract ventilation to points where emissions occur.(PROC3)
	Batch process	Provide extract ventilation to points where emissions occur.(PROC4)
	Material transfers Bulk transfers Non-dedicated facility	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a)
	Material transfers Bulk transfers Dedicated facility	Fill containers/cans at dedicated filling points supplied with local extract ventilation. Ensure material transfers are under containment or extract ventilation.(PROC8b)
	Material transfers Drum/batch transfers Small package filling Pouring from small containers	Fill containers/cans at dedicated filling points supplied with local extract ventilation. Ensure material transfers are under containment or extract ventilation.(PROC9)
	Laboratory activities With sample collection	Handle in a fume cupboard or under extract ventilation.(PROC15)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC1: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC1	---	Fresh water	PEC	5,17µg/L	0,0167
ERC1	---	Marine water	PEC	0,416µg/L	0,0134
ERC1	---	Fresh water sediment	PEC	9,3µg/kg wwt	0,0036
ERC1	---	Marine sediment	PEC	0,749µg/kg wwt	0,0028
ERC1	---	Soil	PEC	0,126µg/kg	0,00038
ERC1	---	Groundwater	PEC	0,0498µg/L	0,000092
ERC1	---	Sewage treatment plant (STP)	PEC	0,883µg/L	0,000034

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: ECETOC TRA model v2

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01ppm	0,0001
PROC1	---	Worker - dermal, long-	0,07mg/kg/day	0,0058

		term - systemic		
PROC2	---	Worker - inhalative, long-term	50ppm	0,5
PROC2	---	Worker - dermal, long-term - systemic	0,27mg/kg/day	0,0225
PROC3	---	Worker - inhalative, long-term	10ppm	0,1
PROC3	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,0058
PROC4	---	Worker - inhalative, long-term	10ppm	0,1
PROC4	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,114
PROC8a	---	Worker - inhalative, long-term	50ppm	0,5
PROC8a	---	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,228
PROC8b	---	Worker - inhalative, long-term	4,5ppm	0,05
PROC8b	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,114
PROC9	---	Worker - inhalative, long-term	20ppm	0,2
PROC9	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,114
PROC15	---	Worker - inhalative, long-term	50ppm	0,5
PROC15	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,0058

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 2: 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	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
Paint strippers		
Amount used	Regional use tonnage (tons/year):	2810 ton(s)/year
	Fraction of regional tonnage used locally:	0,085
	Maximum daily site tonnage (kg/day):	797 kg
	Annual site tonnage	239 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	0,025
	Emission or Release Factor: Water	0,02
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related	Type of Sewage	Domestic sewage treatment plant

to sewage treatment plant	Treatment Plant	
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling environmental exposure for: ERC2		
Relevant for aerosol		
Amount used	Regional use tonnage (tons/year):	1120 ton(s)/year
	Fraction of regional tonnage used locally:	0,893
	Maximum daily site tonnage (kg/day):	3334 kg
	Annual site tonnage	1000 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	0,025
	Emission or Release Factor: Water	0,02
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.3 Contributing scenario controlling environmental exposure for: ERC2		
Metal degreasers		
Amount used	Regional use tonnage (tons/year):	1180 ton(s)/year
	Fraction of regional tonnage used locally:	1
	Maximum daily site tonnage (kg/day):	3933 kg
	Annual site tonnage	1180 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	0,025
	Emission or Release Factor: Water	0,02
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %

2.4 Contributing scenario controlling environmental exposure for: ERC2

Relevant for Adhesives

Amount used	Regional use tonnage (tons/year):	2070 ton(s)/year
	Fraction of regional tonnage used locally:	0,275
	Maximum daily site tonnage (kg/day):	1898 kg
	Annual site tonnage	569 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	0,01
	Emission or Release Factor: Water	0
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater

measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.5 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems) Use in contained batch processes	Handle substance within a predominantly closed system provided with extract ventilation.(PROC3)
	Batch process	Provide extract ventilation to points where emissions occur.(PROC4)
	Mixing operations (open systems)	Provide extract ventilation to points where emissions occur.(PROC5)
	Material transfers Bulk transfers Manual Non-dedicated facility	Provide extract ventilation to points where emissions occur. Use drum pumps or carefully pour from container.(PROC8a)
	Material transfers Bulk transfers Dedicated facility	Fill containers/cans at dedicated filling points supplied with local extract ventilation. Use drum pumps or carefully pour from container.(PROC8b)
	Drum and small package filling Dedicated facility	Fill containers/cans at dedicated filling points supplied with local extract ventilation. Clear spills immediately.(PROC9)
	Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC2: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC2	See section 2.1	Fresh water	PEC	0,057mg/L	0,183
ERC2	See section 2.1	Marine water	PEC	0,0056mg/L	0,181
ERC2	See section 2.1	Fresh water sediment	PEC	0,102mg/kg	0,040
ERC2	See section 2.1	Marine sediment	PEC	0,010mg/kg	0,038
ERC2	See section 2.1	Soil	PEC	0,058mg/kg	0,176
ERC2	See section 2.1	Sewage treatment plant (STP)	PEC	0,517mg/L	0,010
ERC2	See section 2.2	Fresh water	PEC	0,0050mg/L	0,016
ERC2	See section 2.2	Marine water	PEC	0,004mg/L	0,129
ERC2	See section 2.2	Fresh water sediment	PEC	0,0089mg/kg	0,0035
ERC2	See section 2.2	Marine sediment	PEC	0,0007mg/kg	0,003
ERC2	See section 2.2	Soil	PEC	0,0013mg/kg	0,004
ERC2	See section 2.2	Sewage treatment plant (STP)	PEC	0,0011mg/L	0,00004
ERC2	See section 2.3	Fresh water	PEC	0,259mg/L	0,835
ERC2	See section 2.3	Marine water	PEC	0,029mg/L	0,935
ERC2	See section 2.3	Fresh water sediment	PEC	0,467mg/kg	0,182
ERC2	See section 2.3	Marine sediment	PEC	0,047mg/kg	0,181
ERC2	See section 2.3	Soil	PEC	0,283mg/kg	0,858
ERC2	See section 2.3	Sewage treatment plant (STP)	PEC	2,54mg/L	0,098
ERC2	See section 2.4	Fresh water	PEC	0,0049mg/L	0,016
ERC2	See section 2.4	Marine water	PEC	0,0004mg/L	0,013
ERC2	See section 2.4	Fresh water sediment	PEC	0,0087mg/kg	0,0034
ERC2	See section 2.4	Marine sediment	PEC	0,0007mg/kg	0,0027
ERC2	See section 2.4	Soil	PEC	0,0004mg/kg	0,0012
ERC2	See section 2.4	Sewage treatment plant (STP)	PEC	0mg/L	0

Workers

PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC3	---	Worker - inhalative, long-term - systemic	10ppm	0,12
PROC3	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,006
PROC4	---	Worker - inhalative, long-term - systemic	10ppm	0,12
PROC4	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,11
PROC5	---	Worker - inhalative, long-term - systemic	25ppm	0,30
PROC5	---	Worker - dermal, long-	2,74mg/kg/day	0,228

		term - systemic		
PROC8a	---	Worker - inhalative, long-term - systemic	25ppm	0,3
PROC8a	---	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,228
PROC8b	---	Worker - inhalative, long-term - systemic	4,5ppm	0,05
PROC8b	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,114
PROC9	---	Worker - inhalative, long-term - systemic	20ppm	0,2
PROC9	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,114
PROC15	---	Worker - inhalative, long-term - systemic	50ppm	0,61
PROC15	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,006

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

See Annex XVII to Regulation (EC) n° 1907/2006 for Conditions of restriction
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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 3: Formulation & (re)packing of substances and mixtures		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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	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		
Amount used	Regional use tonnage (tons/year):	2810 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site tonnage (kg/day):	5,14 kg
	Annual site tonnage	5,62 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid

	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	4 hours/day(Indoor PROC8a)
	Frequency of use	1 hours/day(Outdoor PROC8a, PROC8b, PROC9)
Technical conditions and measures to control dispersion from source towards the worker	Transfer from/pouring from containers Non-dedicated facility	Provide extract ventilation to points where emissions occur.(PROC8a)
	Transfer from/pouring from containers Drum and small package filling Dedicated facility	Fill containers/cans at dedicated filling points supplied with local extract ventilation. Use dedicated equipment.(PROC8b, PROC9)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC8a, ERC8d: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	---	Fresh water	PEC	0,0064mg/L	0,012
ERC8a, ERC8d	---	Marine water	PEC	0,0006mg/L	0,00291
ERC8a, ERC8d	---	Fresh water sediment	PEC	0,012mg/kg	0,012
ERC8a, ERC8d	---	Marine sediment	PEC	0,0010mg/kg	0,00291
ERC8a, ERC8d	---	Soil	PEC	0,0029mg/kg	0,00553
ERC8a, ERC8d	---	Sewage treatment plant (STP)	PEC	0,016mg/L	0,000618

Workers

PROC8a, PROC8b, PROC9: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC8a	Indoor use	Worker - inhalative, long-term - systemic	60ppm	0,6
PROC8a	Indoor use	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,0006
PROC8a	Outdoor use	Worker - inhalative, long-term - systemic	70ppm	0,7
PROC8a	Outdoor use	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,0006
PROC8b	Indoor use	Worker - inhalative, long-term - systemic	25ppm	0,3
PROC8b	Indoor use	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0003
PROC8b	Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4

PROC8b	Outdoor use	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0003
PROC9	Indoor use	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC9	Indoor use	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0003
PROC9	Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4
PROC9	Outdoor use	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0003

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 4: Use in coatings		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU11: Manufacture of rubber products SU18: Manufacture of furniture	
Process categories	PROC7: Industrial spraying PROC10: Roller application or brushing	
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		
Relevant for aerosol		
Amount used	Regional use tonnage (tons/year):	1120 ton(s)/year
	Fraction of regional tonnage used locally:	0,893
	Maximum daily site tonnage (kg/day):	10720 kg
	Annual site tonnage	1072 ton(s)/year
Frequency and duration of use	Continuous exposure	100 days/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	0,95
	Emission or Release Factor: Water	1
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling environmental exposure for: ERC4		
Relevant for Adhesives		
Amount used	Regional use tonnage (tons/year):	2070 ton(s)/year
	Fraction of regional	0,08

	tonnage used locally:	
	Maximum daily site tonnage (kg/day):	6900 kg
	Annual site tonnage	2070 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	6,27 .10-3
	Emission or Release Factor: Water	0
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.3 Contributing scenario controlling worker exposure for: PROC7, PROC10		
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	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Spraying	Carry out in a vented booth provided with laminar airflow.(PROC7)
	Rolling, Brushing	Provide extract ventilation to points where emissions occur.(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	
3. Exposure estimation and reference to its source		

Environment

ERC4: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4	See section 2.1	Fresh water	PEC	0,0049mg/L	0,00919
ERC4	See section 2.1	Marine water	PEC	0,0004mg/L	0,00206
ERC4	See section 2.1	Fresh water sediment	PEC	0,0089mg/kg	0,00919
ERC4	See section 2.1	Marine sediment	PEC	0,0007mg/kg	0,00206
ERC4	See section 2.1	Soil	PEC	0,045mg/kg	0,087
ERC4	See section 2.1	Sewage treatment plant (STP)	PEC	0,0011mg/L	0,00004
ERC4	See section 2.2	Fresh water	PEC	0,0049mg/L	0,00898
ERC4	See section 2.2	Marine water	PEC	0,0004mg/L	0,00201
ERC4	See section 2.2	Fresh water sediment	PEC	0,0087mg/kg	0,00898
ERC4	See section 2.2	Marine sediment	PEC	0,0007mg/kg	0,00201
ERC4	See section 2.2	Soil	PEC	0,0021mg/kg	0,00398
ERC4	See section 2.2	Sewage treatment plant (STP)	PEC	0mg/L	0

Workers

PROC7, PROC10: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC7	---	Worker - inhalative, long-term - systemic	25ppm	0,25
PROC7	---	Worker - dermal, long-term - systemic	8,57mg/kg/day	0,002
PROC10	---	Worker - inhalative, long-term - systemic	25ppm	0,25
PROC10	---	Worker - dermal, long-term - systemic	5,49mg/kg/day	0,001

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 5: Use in coatings		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC10: Roller application or brushing PROC11: Non industrial spraying	
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		
Relevant for aerosol		
Amount used	Regional use tonnage (tons/year):	1120 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site tonnage (kg/day):	6,14 kg
	Annual site tonnage	2,24 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Relevant for Adhesives		
Amount used	Regional use tonnage (tons/year):	2070 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site	11,3 kg

	tonnage (kg/day):	
	Annual site tonnage	4,14 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.3 Contributing scenario controlling worker exposure for: PROC10, PROC11		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	1 hours/day(PROC10)
	Frequency of use	4 hours/day(PROC11)
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Rolling, Brushing	Provide extract ventilation to points where emissions occur.(PROC10)
	Spraying	Provide extract ventilation to points where emissions occur.(PROC11)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Spraying	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC8a, ERC8d: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	See section 2.1	Fresh water	PEC	0,012mg/L	0,022
ERC8a, ERC8d	See section 2.1	Marine water	PEC	0,0012mg/L	0,00593
ERC8a, ERC8d	See section 2.1	Fresh water sediment	PEC	0,022mg/kg	0,022
ERC8a, ERC8d	See section 2.1	Marine sediment	PEC	0,0020mg/kg	0,00593
ERC8a, ERC8d	See section 2.1	Soil	PEC	0,0084mg/kg	0,016
ERC8a, ERC8d	See section 2.1	Sewage treatment plant (STP)	PEC	0,076mg/L	0,00293
ERC8a, ERC8d	See section 2.2	Fresh water	PEC	0,019mg/L	0,035
ERC8a, ERC8d	See section 2.2	Marine water	PEC	0,0019mg/L	0,00954
ERC8a, ERC8d	See section 2.2	Fresh water sediment	PEC	0,035mg/kg	0,035
ERC8a, ERC8d	See section 2.2	Marine sediment	PEC	0,0033mg/kg	0,00954
ERC8a, ERC8d	See section 2.2	Soil	PEC	0,016mg/kg	0,00563
ERC8a, ERC8d	See section 2.2	Sewage treatment plant (STP)	PEC	0,146mg/L	0,00564

Workers

PROC10, PROC11: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC10	Indoor use	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC10	Indoor use	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,001
PROC10	Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4
PROC10	Outdoor use	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,001
PROC11	Indoor use	Worker - inhalative, long-term - systemic	60ppm	0,6
PROC11	Indoor use	Worker - dermal, long-term - systemic	10,71mg/kg/day	0,002
PROC11	Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4
PROC11	Outdoor use	Worker - dermal, long-term - systemic	10,71mg/kg/day	0,002

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 6: Use in cleaning agents	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU7: Printing and reproduction of recorded media SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
Chemical product category	PC35: Washing and cleaning products
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC7		
Metal degreasers		
Amount used	Regional use tonnage (tons/year):	1180 ton(s)/year
	Fraction of regional tonnage used locally:	0,046
	Maximum daily site tonnage (kg/day):	59000 kg
	Annual site tonnage	1180 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/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	0,3
	Emission or Release Factor: Water	1 .10-4
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	

Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling environmental exposure for: ERC4, ERC7		
Paint strippers		
Amount used	Regional use tonnage (tons/year):	2810 ton(s)/year
	Fraction of regional tonnage used locally:	0,11
	Maximum daily site tonnage (kg/day):	140500 kg
	Annual site tonnage	2810 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/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	0,3
	Emission or Release Factor: Water	1 .10-4
	Emission or Release Factor: Soil	0
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.3 Contributing scenario controlling environmental exposure for: ERC4, ERC7		
Relevant for Cleaning agent, Relevant for Functional Fluids.		
Amount used	Regional use tonnage (tons/year):	257 ton(s)/year
	Fraction of regional tonnage used locally:	0,04
	Maximum daily site tonnage (kg/day):	500 kg
	Annual site tonnage	10 ton(s)/year

Frequency and duration of use	Continuous exposure	100 days/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	0,01
	Emission or Release Factor: Water	1 .10-3
	Emission or Release Factor: Soil	1 .10-3
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.4 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC4, PROC7, PROC10, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Application of cleaning products in closed systems Vapour degreasing	Handle substance within a closed system.(PROC2)
	Application of cleaning products in closed systems Use in contained systems Drum/batch transfers	Handle substance within a predominantly closed system provided with extract ventilation.(PROC3)
	Batch process	Provide extract ventilation to points where emissions occur.(PROC4)
	Manual Surfaces Cleaning no spraying	Provide extract ventilation to points where emissions occur.(PROC10)

	Manual Surfaces Cleaning Dipping, immersion and pouring	Provide extract ventilation to points where emissions occur. or Avoid carrying out operation for more than 1 hour.(PROC13)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Spraying	Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC4, ERC7: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4, ERC7	See section 2.1	Fresh water	PEC	0,0064mg/L	0,012
ERC4, ERC7	See section 2.1	Marine water	PEC	0,0005mg/L	0,0028
ERC4, ERC7	See section 2.1	Fresh water sediment	PEC	0,012mg/kg	0,012
ERC4, ERC7	See section 2.1	Marine sediment	PEC	0,0010mg/kg	0,0028
ERC4, ERC7	See section 2.1	Soil	PEC	0,0028mg/kg	0,00546
ERC4, ERC7	See section 2.1	Sewage treatment plant (STP)	PEC	0,016mg/L	0,000618
ERC4, ERC7	See section 2.2	Fresh water	PEC	0,0064mg/L	0,012
ERC4, ERC7	See section 2.2	Marine water	PEC	0,0006mg/L	0,00291
ERC4, ERC7	See section 2.2	Fresh water sediment	PEC	0,012mg/kg	0,012
ERC4, ERC7	See section 2.2	Marine sediment	PEC	0,0010mg/kg	0,00291
ERC4, ERC7	See section 2.2	Soil	PEC	0,0029mg/kg	0,00553
ERC4, ERC7	See section 2.2	Sewage treatment plant (STP)	PEC	0,016mg/L	0,00062
ERC4, ERC7	See section 2.3	Fresh water	PEC	0,0065mg/L	0,012
ERC4, ERC7	See section 2.3	Marine water	PEC	0,0006mg/L	0,00287
ERC4, ERC7	See section 2.3	Fresh water sediment	PEC	0,0121mg/kg	0,012
ERC4, ERC7	See section 2.3	Marine sediment	PEC	0,0010mg/kg	0,00287
ERC4, ERC7	See section 2.3	Soil	PEC	0,0019mg/kg	0,00361
ERC4, ERC7	See section 2.3	Sewage treatment plant (STP)	PEC	0,017mg/L	0,00066

Workers

PROC2, PROC3, PROC4, PROC7, PROC10, PROC13: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term - systemic	50ppm	0,50
PROC2	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,00006

PROC3	---	Worker - inhalative, long-term - systemic	10ppm	0,10
PROC3	---	Worker - dermal, long-term - systemic	0,34mg/kg/day	0,00001
PROC4	---	Worker - inhalative, long-term - systemic	10ppm	0,10
PROC4	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0003
PROC7	---	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC7	---	Worker - dermal, long-term - systemic	42,86mg/kg/day	0,002
PROC10	---	Worker - inhalative, long-term - systemic	25ppm	0,3
PROC10	---	Worker - dermal, long-term - systemic	27,43mg/kg/day	0,001
PROC13	---	Worker - inhalative, long-term - systemic	25ppm	0,3
PROC13	---	Worker - dermal, long-term - systemic	13,71mg/kg/day	0,0006

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

See Annex XVII to Regulation (EC) n° 1907/2006 for Conditions of restriction
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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 7: Use in cleaning agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Chemical product category	PC35: Washing and cleaning products	
Process categories	PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
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		
Metal degreasers		
Amount used	Regional use tonnage (tons/year):	1180 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site tonnage (kg/day):	6,47 kg
	Annual site tonnage	2,36 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Paint strippers		
Amount used	Regional use tonnage (tons/year):	2810 ton(s)/year
	Fraction of regional	0,002

	tonnage used locally:	
	Maximum daily site tonnage (kg/day):	15,4 kg
	Annual site tonnage	5,62 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.3 Contributing scenario controlling worker exposure for: PROC10		
Relevant for Cleaning agent		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Equipment cleaning and maintenance Manual Rolling, Brushing	Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	
2.4 Contributing scenario controlling worker exposure for: PROC10, PROC11		

Paint strippersgraffiti remover		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Cleaning Large surfaces Rolling, Brushing Cleaning with high pressure washers Spraying	Wear a full face respirator conforming to EN140 with Type A filter or better.(PROC10, PROC11)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	
2.5 Contributing scenario controlling worker exposure for: PROC11		
Degreasing products		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Cleaning Cleaning with high pressure washers Spraying	Wear a full face respirator conforming to EN140 with Type A filter or better.(PROC11)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	
2.6 Contributing scenario controlling worker exposure for: PROC13		
Paint strippers		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	

Technical conditions and measures to control dispersion from source towards the worker	Cleaning Manual Dipping, immersion and pouring	Provide extract ventilation to points where emissions occur.(PROC13)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Cleaning Manual Dipping, immersion and pouring	Wear a respirator conforming to EN140 with Type A filter or better.(PROC13)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC8a, ERC8d: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	See section 2.1	Fresh water	PEC	0,0064mg/L	0,012
ERC8a, ERC8d	See section 2.1	Marine water	PEC	0,0005mg/L	0,0028
ERC8a, ERC8d	See section 2.1	Fresh water sediment	PEC	0,012mg/kg	0,012
ERC8a, ERC8d	See section 2.1	Marine sediment	PEC	0,0010mg/kg	0,0028
ERC8a, ERC8d	See section 2.1	Soil	PEC	0,0028mg/kg	0,00546
ERC8a, ERC8d	See section 2.1	Sewage treatment plant (STP)	PEC	0,016mg/L	0,000618
ERC8a, ERC8d	See section 2.2	Fresh water	PEC	0,0064mg/L	0,012
ERC8a, ERC8d	See section 2.2	Marine water	PEC	0,0006mg/L	0,00291
ERC8a, ERC8d	See section 2.2	Fresh water sediment	PEC	0,012mg/kg	0,012
ERC8a, ERC8d	See section 2.2	Marine sediment	PEC	0,0010mg/kg	0,00291
ERC8a, ERC8d	See section 2.2	Soil	PEC	0,0029mg/kg	0,00553
ERC8a, ERC8d	See section 2.2	Sewage treatment plant (STP)	PEC	0,016mg/L	0,000618

Workers

PROC10, PROC11, PROC13: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC10	See section 2.3, Indoor use	Worker - inhalative, long-term - systemic	30ppm	0,3
PROC10	See section 2.3, Indoor use	Worker - dermal, long-term - systemic	5,49mg/kg/day	0,001
PROC10	See section 2.3, Outdoor use	Worker - inhalative, long-term - systemic	21ppm	0,2
PROC10	See section 2.3, Outdoor use	Worker - dermal, long-term - systemic	5,49mg/kg/day	0,001
PROC10	See section 2.4, Indoor use	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC10	See section 2.4, Indoor	Worker - dermal, long-	5,49mg/kg/day	0,001

	use	term - systemic		
PROC10	See section 2.4, Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4
PROC10	See section 2.4, Outdoor use	Worker - dermal, long-term - systemic	5,49mg/kg/day	0,001
PROC11	See section 2.4, Indoor use	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC11	See section 2.4, Indoor use	Worker - dermal, long-term - systemic	21,43mg/kg/day	0,005
PROC11	See section 2.4, Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4
PROC11	See section 2.4, Outdoor use	Worker - dermal, long-term - systemic	21,43mg/kg/day	0,005
PROC11	See section 2.5, Indoor use	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC11	See section 2.5, Indoor use	Worker - dermal, long-term - systemic	21,43mg/kg/day	0,005
PROC11	See section 2.5, Outdoor use	Worker - inhalative, long-term - systemic	35ppm	0,4
PROC11	See section 2.5, Outdoor use	Worker - dermal, long-term - systemic	21,43mg/kg/day	0,005
PROC13	See section 2.6	Worker - inhalative, long-term - systemic	25ppm	0,3
PROC13	See section 2.6	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,001

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

See Annex XVII to Regulation (EC) n° 1907/2006 for Conditions of restriction
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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 8: Use in agrochemicals		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Chemical product category	PC8: Biocidal products (e.g. Disinfectants, pest control) PC27: Plant protection products	
Process categories	PROC11: Non industrial spraying	
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		
Relevant for aerosol		
Amount used	Regional use tonnage (tons/year):	1120 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site tonnage (kg/day):	6,14 kg
	Annual site tonnage	2,24 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling worker exposure for: PROC11		
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	> 100 hPa

Frequency and duration of use	Frequency of use	4 hours/day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Spraying/fogging by machine application	Ensure that enough fresh air is supplied to dilute and remove dusts, fumes or vapours. Between 5 and 15 air changes per hour are recommended, with a through draught.(PROC11)
	Spraying/fogging by machine application	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.(PROC11)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
	Spraying/fogging by machine application	Segregate the activity away from other operations.(PROC11)
Conditions and measures related to personal protection, hygiene and health evaluation	Spraying/ fogging by manual application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC8a, ERC8d: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	---	Fresh water	PEC	0,012mg/L	0,022
ERC8a, ERC8d	---	Marine water	PEC	0,0012mg/L	0,00593
ERC8a, ERC8d	---	Fresh water sediment	PEC	0,022mg/kg	0,022
ERC8a, ERC8d	---	Marine sediment	PEC	0,0021mg/kg	0,00593
ERC8a, ERC8d	---	Soil	PEC	0,0084mg/kg	0,016
ERC8a, ERC8d	---	Sewage treatment plant (STP)	PEC	0,076mg/L	0,00293

Workers

PROC11: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC11	Indoor use	Worker - inhalative, long-term - systemic	54ppm	0,5
PROC11	Indoor use	Worker - dermal, long-term - systemic	12,86mg/kg/day	0,003
PROC11	Outdoor use	Worker - dermal, long-term - systemic	12,86mg/kg/day	0,003
PROC11	Outdoor use	Worker - inhalative, long-term - systemic	21ppm	0,2

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.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 9: Use as Functional Fluids		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Chemical product category	PC16: Heat transfer fluids	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises	
Environmental Release Categories	ERC7: Industrial use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC7		
Amount used	Regional use tonnage (tons/year):	257 ton(s)/year
	Fraction of regional tonnage used locally:	0,04
	Maximum daily site tonnage (kg/day):	500 kg
	Annual site tonnage	10 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/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	0,01
	Emission or Release Factor: Water	1 .10-3
	Emission or Release Factor: Soil	1 .10-3
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC12		
Product characteristics	Concentration of the	Covers percentage substance in the product up to

	Substance in Mixture/Article	25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Production of foam-based objects General exposures (closed systems) Continuous process With sample collection Use in contained batch processes	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Production of foam-based objects Drum and small package filling Dedicated facility	Provide extract ventilation to points where emissions occur.(PROC9)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC7: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC7	---	Fresh water	PEC	0,0065mg/L	0,012
ERC7	---	Marine water	PEC	0,0006mg/L	0,00287
ERC7	---	Fresh water sediment	PEC	0,0121mg/kg	0,012
ERC7	---	Marine sediment	PEC	0,0010mg/kg	0,00287
ERC7	---	Soil	PEC	0,0019mg/kg	0,00361
ERC7	---	Sewage treatment plant (STP)	PEC	0,017mg/L	0,000656

Workers

PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC12: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01ppm	0,0001
PROC1	---	Worker - dermal, long-term - systemic	0,04mg/kg/day	0,00001
PROC2	---	Worker - inhalative, long-	30ppm	0,30

		term - systemic		
PROC2	---	Worker - dermal, long-term - systemic	0,16mg/kg/day	0,00003
PROC3	---	Worker - inhalative, long-term - systemic	60ppm	0,60
PROC3	---	Worker - dermal, long-term - systemic	0,04mg/kg/day	0,00001
PROC4	---	Worker - inhalative, long-term - systemic	60ppm	0,60
PROC4	---	Worker - dermal, long-term - systemic	0,82mg/kg/day	0,0002
PROC8b	---	Worker - inhalative, long-term - systemic	90ppm	0,90
PROC8b	---	Worker - dermal, long-term - systemic	0,82mg/kg/day	0,0002
PROC9	---	Worker - inhalative, long-term - systemic	12ppm	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,82mg/kg/day	0,0002
PROC12	---	Worker - inhalative, long-term - systemic	60ppm	0,6
PROC12	---	Worker - dermal, long-term - systemic	0,04mg/kg/day	0,00001

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 10: Use in laboratories		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Sectors of end-use	SU24: Scientific research and development	
Chemical product category	PC21: Laboratory chemicals	
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		
Amount used	Regional use tonnage (tons/year):	257 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site tonnage (kg/day):	704 kg
	Annual site tonnage	257 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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	0,5
	Emission or Release Factor: Water	0,5
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa

Frequency and duration of use	Frequency of use	4 hours/day(PROC10)
	Frequency of use	8 hours/day(PROC15)
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Rolling, Brushing Cleaning Degreasing small objects in cleaning station	Provide extract ventilation to points where emissions occur.(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC8a: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a	---	Fresh water	PEC	0,0058mg/L	0,011
ERC8a	---	Marine water	PEC	0,0005mg/L	0,00248
ERC8a	---	Fresh water sediment	PEC	0,010mg/kg	0,011
ERC8a	---	Marine sediment	PEC	0,0009mg/kg	0,00248
ERC8a	---	Soil	PEC	0,0010mg/kg	0,00199
ERC8a	---	Sewage treatment plant (STP)	PEC	0,0091mg/L	0,000353

Workers

PROC10, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC10	---	Worker - inhalative, long-term - systemic	60ppm	0,6
PROC10	---	Worker - dermal, long-term - systemic	5,49mg/kg/day	0,0012
PROC15	---	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC15	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,00001

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 11: Use as extraction agent and/or processing aid		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU9: Manufacture of fine chemicals	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC10: Roller application or brushing PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
Process solvent		
Amount used	Regional use tonnage (tons/year):	2410 ton(s)/year
	Fraction of regional tonnage used locally:	1
	Maximum daily site tonnage (kg/day):	24100 kg
	Annual site tonnage	2410 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	0,669
	Emission or Release Factor: Water	1,54 .10-3
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d

	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling environmental exposure for: ERC4		
Extraction medium - large sites		
Amount used	Regional use tonnage (tons/year):	13400 ton(s)/year
	Fraction of regional tonnage used locally:	1
	Maximum daily site tonnage (kg/day):	36712 kg
	Annual site tonnage	13400 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	7,06 .10-4
	Emission or Release Factor: Water	5,29 .10-3
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.3 Contributing scenario controlling environmental exposure for: ERC4		
Extraction medium - small sites		
Amount used	Regional use tonnage (tons/year):	13400 ton(s)/year
	Fraction of regional tonnage used locally:	0,287
	Maximum daily site tonnage (kg/day):	38460 kg
	Annual site tonnage	3846 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	0,114
	Emission or Release Factor: Water	0,095
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC10, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems) Continuous process With sample collection	Handle substance within a closed system.(PROC1, PROC2)
	General exposures (closed systems) Use in contained batch processes	Handle substance within a predominantly closed system provided with extract ventilation.(PROC3)
	Batch process	Provide extract ventilation to points where emissions occur.(PROC4)
	Laboratory activities Rolling, Brushing	Provide extract ventilation to points where emissions occur.(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	
3. Exposure estimation and reference to its source		

Environment

ERC4: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4	See section 2.1	Fresh water	PEC	0,082mg/L	0,153
ERC4	See section 2.1	Marine water	PEC	0,0082mg/L	0,042
ERC4	See section 2.1	Fresh water sediment	PEC	0,149mg/kg	0,153
ERC4	See section 2.1	Marine sediment	PEC	0,0149mg/kg	0,042
ERC4	See section 2.1	Soil	PEC	0,126mg/kg	0,245
ERC4	See section 2.1	Sewage treatment plant (STP)	PEC	0,776mg/L	0,030
ERC4	See section 2.2	Fresh water	PEC	0,011mg/L	0,021
ERC4	See section 2.2	Marine water	PEC	0,0010mg/L	0,00531
ERC4	See section 2.2	Fresh water sediment	PEC	0,020mg/kg	0,021
ERC4	See section 2.2	Marine sediment	PEC	0,0019mg/kg	0,00531
ERC4	See section 2.2	Soil	PEC	0,0075mg/kg	0,015
ERC4	See section 2.2	Sewage treatment plant (STP)	PEC	0,064mg/L	0,00247
ERC4	See section 2.3	Fresh water	PEC	0,185mg/L	0,343
ERC4	See section 2.3	Marine water	PEC	0,018mg/L	0,093
ERC4	See section 2.3	Fresh water sediment	PEC	0,334mg/kg	0,343
ERC4	See section 2.3	Marine sediment	PEC	0,033mg/kg	0,093
ERC4	See section 2.3	Soil	PEC	0,211mg/kg	0,411
ERC4	See section 2.3	Sewage treatment plant (STP)	PEC	1,81mg/L	0,070

Workers

PROC1, PROC2, PROC3, PROC4, PROC10, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01ppm	0,0001
PROC1	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,00001
PROC2	---	Worker - inhalative, long-term - systemic	50ppm	0,50
PROC2	---	Worker - dermal, long-term - systemic	0,27mg/kg/day	0,00006
PROC3	---	Worker - inhalative, long-term - systemic	10ppm	0,10
PROC3	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,00001
PROC4	---	Worker - inhalative, long-term - systemic	10ppm	0,10
PROC4	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0003
PROC10	---	Worker - inhalative, long-	25ppm	0,25

		term - systemic		
PROC10	---	Worker - dermal, long-term - systemic	5,49mg/kg/day	0,001
PROC15	---	Worker - inhalative, long-term - systemic	50ppm	0,5
PROC15	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,00001

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 12: 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	
Chemical product category	PC19: Intermediate	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
Amount used	Regional use tonnage (tons/year):	2570 ton(s)/year
	Fraction of regional tonnage used locally:	1
	Maximum daily site tonnage (kg/day):	8567 kg
	Annual site tonnage	2570 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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	5,00 .10-4
	Emission or Release Factor: Water	0,01
	Emission or Release Factor: Soil	0
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant

	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems) Continuous process With sample collection	Handle substance within a closed system.(PROC1, PROC2)
	General exposures (closed systems) Use in contained batch processes	Handle substance within a predominantly closed system provided with extract ventilation.(PROC3)
	Batch process	Provide extract ventilation to points where emissions occur.(PROC4)
	Material transfers Bulk transfers Non-dedicated facility	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a)
	Material transfers Bulk transfers Dedicated facility	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC8b)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC6a: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC6a	---	Fresh water	PEC	0,269mg/L	0,867
ERC6a	---	Marine water	PEC	0,0282mg/L	0,910
ERC6a	---	Fresh water sediment	PEC	0,509mg/kg	0,198
ERC6a	---	Marine sediment	PEC	0,0507mg/kg	0,195
ERC6a	---	Soil	PEC	0,308mg/kg	0,933
ERC6a	---	Sewage treatment plant (STP)	PEC	2,78mg/L	0,107

The default values from the Reach Guidance R.16 are replaced by the values from the ESVOC2 SpERC.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01ppm	0,0001
PROC1	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,0058
PROC2	---	Worker - inhalative, long-term - systemic	50ppm	0,61
PROC2	---	Worker - dermal, long-term - systemic	0,27mg/kg/day	0,0225
PROC3	---	Worker - inhalative, long-term - systemic	10ppm	0,12
PROC3	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,006
PROC4	---	Worker - inhalative, long-term - systemic	10ppm	0,12
PROC4	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,0114
PROC8a	---	Worker - inhalative, long-term - systemic	50ppm	0,61
PROC8a	---	Worker - dermal, long-term - systemic	2,74mg/kg/day	0,228
PROC8b	---	Worker - inhalative, long-term - systemic	4,50ppm	0,054
PROC8b	---	Worker - dermal, long-term - systemic	1,37mg/kg/day	0,114
PROC15	---	Worker - inhalative, long-term - systemic	50ppm	0,61
PROC15	---	Worker - dermal, long-term - systemic	0,07mg/kg/day	0,006

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 13: Use as blowing agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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) PROC12: Use of blowing agents in manufacture of foam	
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	Regional use tonnage (tons/year):	955 ton(s)/year
	Fraction of regional tonnage used locally:	1
	Maximum daily site tonnage (kg/day):	3183 kg
	Annual site tonnage	955 ton(s)/year
Frequency and duration of use	Continuous exposure	300 days/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 .10-3
	Emission or Release Factor: Soil	0
	Indoor, Outdoor.	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	No soil emission controls required, Required removal efficiency is 0%
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC12		
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	> 100 hPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Indoor or outdoor use	
	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Production of foam-based objects General exposures (closed systems) Continuous process With sample collection Use in contained batch processes	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Production of foam-based objects Drum and small package filling Dedicated facility	Provide extract ventilation to points where emissions occur.(PROC9)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374. Wash off any skin contamination immediately.	

3. Exposure estimation and reference to its source

Environment

ERC4: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC4	---	Fresh water	PEC	0,015mg/L	0,028
ERC4	---	Marine water	PEC	0,0014mg/L	0,00732
ERC4	---	Fresh water sediment	PEC	0,027mg/kg	0,028
ERC4	---	Marine sediment	PEC	0,0026mg/kg	0,00732
ERC4	---	Soil	PEC	0,048mg/kg	0,093
ERC4	---	Sewage treatment plant (STP)	PEC	0,103mg/L	0,00398

Workers

PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC12: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01ppm	0,0001

PROC1	---	Worker - dermal, long-term - systemic	0,04mg/kg/day	0,00001
PROC2	---	Worker - inhalative, long-term - systemic	30ppm	0,30
PROC2	---	Worker - dermal, long-term - systemic	0,16mg/kg/day	0,00003
PROC3	---	Worker - inhalative, long-term - systemic	60ppm	0,60
PROC3	---	Worker - dermal, long-term - systemic	0,04mg/kg/day	0,00001
PROC4	---	Worker - inhalative, long-term - systemic	60ppm	0,60
PROC4	---	Worker - dermal, long-term - systemic	0,82mg/kg/day	0,0002
PROC8b	---	Worker - inhalative, long-term - systemic	90ppm	0,90
PROC8b	---	Worker - dermal, long-term - systemic	0,82mg/kg/day	0,0002
PROC9	---	Worker - inhalative, long-term - systemic	12ppm	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,82mg/kg/day	0,0002
PROC12	---	Worker - inhalative, long-term - systemic	60ppm	0,6
PROC12	---	Worker - dermal, long-term - systemic	0,04mg/kg/day	0,00001

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 14: Consumer use		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC8: Biocidal products (e.g. Disinfectants, pest control) PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC27: Plant protection products PC35: Washing and cleaning products 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	
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Amount used	Regional use tonnage (tons/year):	2810 ton(s)/year
	Fraction of regional tonnage used locally:	0,002
	Maximum daily site tonnage (kg/day):	15,4 kg
	Annual site tonnage	5,62 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/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 Factor: Soil	0,01
	Indoor, .	
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No air emission controls required; required removal efficiency is 0%.
	Water	Prevent discharge of substance to wastewater or recover from wastewater
	Soil	Soil emission controls are not applicable as there is no direct release to soil.
	Common practices vary across sites thus conservative process release estimates used.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	93,5 %
2.2 Contributing scenario controlling consumer exposure for: PC1: DIY-use: Glues from tube		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.

	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	9 g
Frequency and duration of use	Frequency of use	52 days/year
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 2 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
2.3 Contributing scenario controlling consumer exposure for: PC1: Sealants		
Activity	Rolling	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	10 g
Frequency and duration of use	Frequency of use	52 days/year
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 2 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
2.4 Contributing scenario controlling consumer exposure for: PC1: DIY-use: Super glue		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Frequency of use	12 days/year
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 2 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
2.5 Contributing scenario controlling consumer exposure for: PC1: DIY-use: wood parquet glue		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid

	Vapour pressure	> 100 hPa
Amount used	Amount used per event	750 g
Frequency and duration of use	Frequency of use	2 hours/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	58 m3
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using when windows closed.
2.6 Contributing scenario controlling consumer exposure for: PC1: DIY-use: Carpet glue		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 8%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	1 kg
Frequency and duration of use	Frequency of use	2 hours/year
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	58 m3
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using when windows closed.
2.7 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	13,8 kg
Frequency and duration of use	Frequency of use	12 days/year
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Ensure spraying away from persons.
2.8 Contributing scenario controlling consumer exposure for: PC1: Glue from spray (joint sealants)		
Product characteristics	Concentration of the	Covers concentrations up to 10%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	75 g
Frequency and duration of use	Frequency of use	3 days/year
	Exposure duration per event	45 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 2 cm²
Other given operational conditions affecting consumers exposure	Room size	10 m3
2.9 Contributing scenario controlling consumer exposure for: PC1: DIY-use: Assembly sealants		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 14%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	390 g
Frequency and duration of use	Frequency of use	1 days/year
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 43 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using when windows closed.
2.10 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	279 g
Frequency and duration of use	Frequency of use	2 days/year
	Exposure duration per event	19,8 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
Conditions and measures related to protection of consumer (e.g.	Consumer Measures	Ensure spraying away from persons.

behavioural advice, personal protection and hygiene)		
2.11 Contributing scenario controlling consumer exposure for: PC27		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	14,85 g
Frequency and duration of use	Frequency of use	90 days/year
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	58 m3
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Ensure spraying away from persons.
2.12 Contributing scenario controlling consumer exposure for: PC35		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Amount used	Amount used per event	27 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin area	Covers skin contact area up to 215 cm²
Other given operational conditions affecting consumers exposure	Room size	15 m3

3. Exposure estimation and reference to its source

Environment

ERC8a, ERC8d: EUSES 2.1

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	---	Fresh water	PEC	0,0064mg/L	0,012
ERC8a, ERC8d	---	Marine water	PEC	0,0005mg/L	0,0028
ERC8a, ERC8d	---	Fresh water sediment	PEC	0,012mg/kg	0,012
ERC8a, ERC8d	---	Marine sediment	PEC	0,0010mg/kg	0,0028
ERC8a, ERC8d	---	Soil	PEC	0,0028mg/kg	0,00546

ERC8a, ERC8d	---	Sewage treatment plant (STP)	PEC	0,016mg/L	0,00062

Consumers

PC1, PC9a, PC27, PC35: ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC1	See section 2.2	Consumer - inhalative, long-term - systemic	---	0,29
PC1	See section 2.2	Consumer - dermal, long-term - systemic	---	0,0006
PC1	See section 2.3	Consumer - inhalative, long-term - systemic	---	0,33
PC1	See section 2.3	Consumer - dermal, long-term - systemic	---	0,0006
PC1	See section 2.4	Consumer - inhalative, long-term - systemic	---	0,017
PC1	See section 2.4	Consumer - dermal, long-term - systemic	---	0,0002
PC1	See section 2.5	Consumer - inhalative, long-term - systemic	---	0,60
PC1	See section 2.5	Consumer - dermal, long-term - systemic	---	0,0007
PC1	See section 2.6	Consumer - inhalative, long-term - systemic	---	0,21
PC1	See section 2.6	Consumer - dermal, long-term - systemic	---	0,0012
PC1	See section 2.7	Consumer - inhalative, long-term - systemic	---	0,001
PC1	See section 2.7	Consumer - dermal, long-term - systemic	---	0,0004
PC1	See section 2.8	Consumer - inhalative, long-term - systemic	---	0,11
PC1	See section 2.8	Consumer - dermal, long-term - systemic	---	0,0021
PC1	See section 2.9	Consumer - inhalative, long-term - systemic	---	0,64
PC1	See section 2.9	Consumer - dermal, long-term - systemic	---	0,0005
PC9a	See section 2.10	Consumer - inhalative, long-term - systemic	---	0,012
PC9a	See section 2.10	Consumer - dermal, long-term - systemic	---	0,0019
PC27	See section 2.11	Consumer - inhalative, long-term - systemic	---	0,0005
PC27	See section 2.11	Consumer - dermal, long-term - systemic	---	0,0001
PC35	See section 2.12	Consumer - inhalative, long-term - systemic	---	0,02
PC35	See section 2.12	Consumer - dermal, long-term - systemic	---	0,0001

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.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see:
http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES