SPECIAL BOILING POINT 100/140

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

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

In case of emergency:
Belgium:
Antipoison Center - Brussels :
TEL: 070/245.245

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

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

1.1. Product identifier

Chemical description	: Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics .
Type of product	: Dearomatized hydrocarbons .
Reach registration number	: 01-2119473851-33

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

Identified use(s)	: See table on the front page of the annex.
Use(s) advised against	: This product is not recommended for any industrial, professional or consumer use other than identified in table on the front page of the annex.

1.3. Details of the supplier of the safety data sheet

Company identification	: See heading of Material Safety Data Sheet.

1.4. Emergency telephone number

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

2. Hazards identification

2.1. Classification of the substance or mixture

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

Highly flammable (F; R11)
Dangerous for the environment (N; R51/53)
Harmful (Xn; R65)
Other (R66-67)

Classification according to Regulation (EC) No 1272/2008

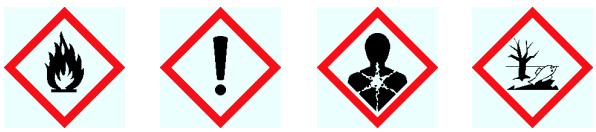
Flammable liquids - Category 2 - Danger (Flam. Liq. 2; H225)
Aspiration hazard - Category 1 - Danger (Asp. Tox. 1; H304)
Specific Target Organ Toxicity - Single exposure - Narcotic effects - Category 3 - Warning (STOT SE 3; H336)
Hazardous to the aquatic environment - Chronic hazard - Category 2 (Aquatic Chronic 2; H411)
Specific Target Organ Toxicity - Repeated exposure - Skin dryness or cracking (STOT RE; EUH066)

2.2. Label elements

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

• Dangerous ingredient(s) : Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

• Hazard pictogram(s)



• Signal word : Danger

2. Hazards identification (continued)

• Hazard statements : H225 - Highly flammable liquid and vapour. H304 - May be fatal if swallowed and enters airways. H336 - May cause drowsiness or dizziness. H411 - Toxic to aquatic life with long lasting effects. EUH066 - Repeated exposure may cause skin dryness or cracking.

• Precautionary statements

- Prevention : P210 - Keep away from heat, sparks, open flames or hot surfaces. – No smoking. P261 - Avoid breathing dust, fume, gas, mist, vapours, spray. P273 - Avoid release to the environment. P280 - Wear protective gloves, protective clothing, eye protection, face protection.

- Response : P301+P310+P331 - IF SWALLOWED : Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

- Disposal considerations : P501 - Dispose of contents and/or container in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Physical/chemical hazards : May generate static electric discharges.

Hazards for the health : Exposure to high doses may cause depression of the central nervous system.

Hazards for the environment : No additional hazard. This product is no substance or contains no PBT or vPvB (in accordance with Annex XIII).

Hazards for the safety : At or above flash point, available vapours may burn in open or explode if confined when mixed with air and exposed to ignition source.

3. Composition/information on ingredients

3.1. Substances

Name component(s)		Weight %	CAS nr	EINECS nr	Index nr	Reach nr	CLASSIFICATION
Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics	:	100 %	-----	920-750-0	-----	01-2119473851-33	F; R11 Xn; R65 R66 R67 N; R51-53 ---------- Flam. Liq. 2; H225 Asp. Tox. 1; H304 STOT SE 3; H336 Aquatic Chronic 2; H411 STOT RE; EUH066

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

Note: Any entry in the EC# (or EINECS#) column that begins with the number "9" is a Provisional List Number provided by ECHA pending publication of the official EC Inventory Number for the substance.

4. First aid measures

4.1. Description of first aid measures

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

First Aid Measures

- Inhalation : Remove victim into fresh air.
Allow the affected person to rest.
If not breathing, give artificial respiration.
If symptoms, consult doctor.

4. First aid measures (continued)

- Skin Contact : Remove contaminated clothing.
  Rinse skin immediately with mild soap and plenty of water. (shower if necessary).
  Consult doctor if irritation develops.
- Eye Contact : Rinse immediately thoroughly and long (at least 15 min.) with plenty of water.
  Remove contact lenses.
  Consult eye doctor if irritation of eyes develops.
- Ingestion : DO NOT INDUCE VOMITING.
  Rinse mouth with water.
  Seek medical attention IMMEDIATELY or take to hospital.

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

See section 11.

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

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

5. Firefighting measures

5.1. Extinguishing media

Extinguishing Media

- Suitable : Extinguishing powder , Foam , Carbon dioxide (CO2) . Water spray .
- Insuitable : Heavy water stream .

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Special Protective Equipment for Firefighters : Use self-contained breathing apparatus and wear protective clothes when in close proximity to fire.

Special Procedures : Apply water spray or fog to cool nearby equipment. Avoid fire-fighting water to enter environment.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

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

6.4. Reference to other sections

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

7. Handling and storage

7.1. Precautions for safe handling

Handling : Avoid breathing vapour and contact with skin, eyes and clothing. Wear recommended personal protective equipment. (See section 8)
Wash hands before and after working with the product.
When using, do not eat, drink or smoke.
Emergency eye wash fountains and showers should be available in the immediate vicinity of any potential exposure.

7.2. Conditions for safe storage, including any incompatibilities

Storage : Keep only in the original, safely locked container in a well ventilated, cool and dark place.
All dangerous products should be placed on a drip tray or should be barreled.
Store away from all heat sources, including direct sunlight.
Keep away from : Strong oxidizing agents .

Protection against Fire and Explosion : Remove all sources of ignition (open fire, sparks, smoking, ...).
Vapour is heavier than air and spreads along the ground with risk of ignition on distance.
Do not use compressed air to either agitate or transfer contents of storage containers (tanks) / shipping drums containing this material.
Take measures against electrostatic discharges.
Use explosionproof equipment.
Sufficiently earthen.

Packaging Material : Carbon steel , Stainless steel , Polyethylene , Polypropylene , Teflon , Polyester .

Insuitable Packaging Material : Natural rubber , Butyl rubber , EPDM, Polystyrene .

7.3. Specific end use(s)

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

8. Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits : Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Recommended limit (RCP-TWA) (Producer) : 260 ppm (1200 mg/m³) (Total hydrocarbons)

Biological limit values : They will be included when available.

DNELs :
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Worker, long-term - local effects, inhalation : 2035 mg/m³
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Worker, long-term - systemic effects, inhalation : 2035 mg/m³
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Worker, long-term - systemic effects, dermal : 773 mg/kg bw/ day
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Consumer, long-term - local effects, oral : 699 mg/kg
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Consumer, long-term - systemic effects, inhalation : 608 mg/m³
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Consumer, long-term - systemic effects, dermal : 699 mg/kg bw/ day
- Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Consumer, long-term - systemic effects, oral : 699 mg/kg

PNECs : Not applicable.

8.2. Exposure controls

Engineering Measures : Ventilation , Local exhaust .

Personal Protection Equipment

8. Exposure controls/personal protection (continued)

- Respiratory protection	: CE-approved mask for organic vapours and solvents (type A, brown).
- Skin protection	: Suitable protective clothing . (Anti-static)
- Hand protection	: Suitable material for safety gloves (EN 374): Nitril rubber : penetration time > 480' - thickness 0,40 mm
- Eye/Face protection	: Closed safety glasses or face shield.
Environmental exposure controls	: See sections 6, 7, 12 en 13.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State (20°C)	: Liquid .
Form/Colour	: Clear , Colourless .
Odour	: Weak petroleum odour odour.
Odour threshold	: No data available.
pH value	: Not applicable.
Melting/Freezing point	: < -20 °C
Boiling Point/Range (1013 hPa)	: 90 - 165 °C
Flash point	: 1 °C
Fire hazard	: P1
Evaporation rate	: 1,9 (n-Butyl acetate = 1) 6 (Diethyl ether =1)
Explosion limits in air	: 0,6 - 7,0 vol.%
Vapour pressure	: 1,5 kPa (0°C) 3,5 kPa (20°C) 12 kPa (50°C)
Relative vapour density (air=1)	: > 1 (101 kPa)
Density	: 0,710 - 0,780 kg/l (15°C)
Solubility in water	: Insoluble .
Soluble in	: Aliphatic hydrocarbons , Aromatic hydrocarbons .
Log P Octanol/Water (20°C)	: Not established.
Auto-ignition temperature	: > 200 °C
Minimum ignition energy	: No data available.
Decomposition temperature	: No data available.
Viscosity (25°C)	: 0,76 mm²/s (Kinematic)
Explosive properties	: No chemical groups associated with explosive properties .
Oxidizing properties	: No chemical groups associated with oxidizing properties .

9.2. Other information

Surface tension (20°C)	: 21,9 mN/m
Specific leading	: 0,9 pS/m
Thermal expansion coefficient	: 0,00114 v/v °C
% Volatiles (by weight)	: 85

10. Stability and reactivity

10.1. Reactivity

10. Stability and reactivity (continued)

Reactivity : Reacts with : Strong oxidizing agents .

10.2. Chemical stability

Stability : Stable at normal circumstances .

10.3. Possibility of hazardous reactions

Hazardous reactions : Not known .

10.4. Conditions to avoid

Conditions to avoid : High temperatures .

10.5. Incompatible materials

Materials to avoid : Strong oxidizing agents .

10.6. Hazardous decomposition products

Hazardous Decomposition Products : Does not decompose at room temperature .
Fire may liberate carbon oxides (CO) and smoke.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity

- Inhalation : Minimal toxicity.
Exposure to high concentrations may cause lowering of consciousness.
Symptoms include: Dizziness , Headache , Nausea , Unconsciousness .
• Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : LC50 (Rat, inhalation, 4 h) : > 23,3 mg/l
- Skin contact : Irritating to skin.
Symptoms include: Redness , Pain .
• Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : LD50 (Rabbit, dermal) : > 2800 mg/kg
- Eye contact : Slight, short-term discomfort of the eyes .
- Ingestion : After swallowing, some drops of liquid can enter the longs (aspiration), which may cause pneumonia.
• Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : LD50 (Rat, oral) : > 5000 mg/kg

Skin corrosion/irritation : Repeated exposure may cause skin dryness or cracking.

Serious eye damage/irritation : Not irritant .

Aspiration hazard : May be fatal if swallowed and enters airways.

Respiratory or skin sensitisation : Not sensitive .

Carcinogenicity : Not listed as carcinogenic .

Mutagenicity : Not listed as mutagenic .

Reproductive toxicity : Not listed for reproductive toxicity .

Specific target organ toxicity - single exposure : To human : Vapours may cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure : To human : Listed not for organ toxicity .
For animals : Effects on kidneys.

12. Ecological information

12.1. Toxicity

12. Ecological information (continued)

Ecotoxicity : • Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : EC50 (Daphnia magna, 48 h) : 4,6 mg/l
• Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : EC50 (Algae, 72 h) : 10 mg/l (Pseudokirchneriella subcapitata)
• Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : LC50 (Fish, 96 h) : 3-10 mg/l (Oncorhynchus mykiss)

12.2. Persistence and degradability

Persistence and degradability : • Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Persistence and degradability : Expected to be easily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation : • Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Bioaccumulation : No data available.

12.4. Mobility in soil

Mobility : • Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : Mobility : Floats on the water .

12.5. Results of PBT and vPvB assessment

Evaluation : • Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics : PBT/vPvB : No

12.6. Other adverse effects

WGK class (DE) : 2 (Water pollutant).
Photochemical ozone creation potential : No data available.
Ozone depletion potential : No data available.
Endocrine disrupting potential : No data available.
Global warming potential : No data available.

13. Disposal considerations

13.1. Waste treatment methods

Waste from residues/Unused products : The product has to be destroyed according to national or local legislation, by a company specialised in handling hazardous waste products.

European list of waste products : XXXXXX - European waste product code. This code is assigned on the basis of the most current applications and can not be representative for pollutions which are arisen at the effective use of the product. The producer of the waste has to evaluate its process himself and has to grant the appropriate waste coding. See Decision 2001/118/EC.

Removal contaminated packaging : Packing is to be used exclusively for the packing of this product.
After use, empty and close the packing very carefully.
In case of returned packing, the empty packing can be offered back to the supplier.

14. Transport information

14.1. UN number

UN Number : 3295

14.2. UN proper shipping name

ADR Name : UN 3295 Hydrocarbons, liquid, n.o.s., (contains Hydrocarbons C7-C9, n-alkanes, isoalkanes, cyclics), 3, II, (D/E), SP 640D

ADN Name : UN 3295 Hydrocarbons, liquid, n.o.s. , (Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics), 3, II

14. Transport information (continued)

IMDG Name : UN 3295 Hydrocarbons, liquid, n.o.s. , (contains Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics), 3, II, (1°C), MARINE POLLUTANT

14.3. Transport hazard classe(s)

Class : 3

14.4. Packing group

Packaging Group : II

14.5. Environmental hazards

Environmentally hazard : Yes

Marine pollutant : Yes

14.6. Special precautions for user

Danger number : 33

Hazard Label(s) : 3

EmS-N° : F-E , S-D

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

Type ship : 2

Pollution category : X

15. Regulatory information

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

Inventories : Australian inventory (AICS): Listed in inventory.
Canadian inventory (DSL): Listed in inventory.
Chinese inventory (IECS): Listed in inventory.
European inventory (EINECS): Listed in inventory.
Korean inventory (KECI): Listed in inventory.
Philippine inventory (PICCS): Listed in inventory.
Inventory of the United States (TSCA): Listed in inventory.

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

15.2. Chemical Safety Assessment

15. Regulatory information (continued)

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

16. Other information

This safety data sheet has been drawn up in accordance with Regulation (EU) No 453/2010.
This safety data sheet is exclusively made for industrial/professional use.

Sources of used key data	:	The information contained herein is based on the present state of our knowledge (Producer(s) , ...). See also on the webaddress: http://apps.echa.europa.eu/registered/registered-sub.aspx#search
R-phrase(s)	:	R11 - Highly flammable. R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R65 - Harmful : may cause lung damage if swallowed. R66 - Repeated exposure may cause skin dryness or cracking. R67 - Vapours may cause drowsiness and dizziness.
(EU)H-statement(s)	:	H225 - Highly flammable liquid and vapour. H304 - May be fatal if swallowed and enters airways. H336 - May cause drowsiness or dizziness. H411 - Toxic to aquatic life with long lasting effects. EUH066 - Repeated exposure may cause skin dryness or cracking.
List of abbrevations and acronyms	:	ADN (Accord européen relatif au transport international des marchandises Dangereuses par voie de Navigation interieur) : European agreement concerning the international carriage of dangerous goods by inland waterways ADR (Accord européen relatif au transport international des marchandises Dangereuses par Route) : European agreement concerning the international carriage of dangerous goods by road CO : Carbon monoxide DNEL (Derived No Effect Level) : an estimated safe exposure level EmS (Emergency Schedule) : the first code refers to the relevant fire schedule and the second code refers to the relevant spillage schedule IMDG (International Maritime Dangerous Goods code) NVCI : National Poisoning Information Center PBT : persistent, bioaccumulative and toxic PNEC (Predicted No Effect Concentration) : concentration below which exposure to a substance is not expected to cause adverse effects REACH : Registration, Evaluation, Authorisation and restriction of Chemicals vPvB : very persistent and very bioaccumulative WGK (Wassergefahrdungsklasse) : a German classification of substances that indicate the environmental hazard for surface water

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

End of document

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	1, 4	NA	ES5247
2	Distribution of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7	NA	ES5250
3	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES5252
4	Rubber production and processing	3	10, 11	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 13, 14, 15, 21	1, 4, 6d	NA	ES5270
5	Polymer processing	3	10	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 13, 14, 21	4	NA	ES5273
6	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	4	NA	ES5254
7	Uses in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	8a, 8d	NA	ES5275
8	Uses in coatings	21	NA	1, 4, 8, 9a, 9b, 9c, 15, 18, 23, 24, 31, 34	NA	8a, 8d	NA	ES5295
9	Use in Cleaning Agents	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 10, 13	4	NA	ES5256
10	Use in Cleaning Agents	22	NA	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	8a, 8d	NA	ES5277
11	Use in Cleaning Agents	21	NA	3, 4, 8, 9a, 9b, 9c, 24, 35, 38	NA	8a, 8d	NA	ES5542
12	Use as binders and release agents	3	NA	NA	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	4	NA	ES5262
13	Use as binders and	22	NA	NA	1, 2, 3, 4,	8a, 8d	NA	ES5284

	release agents				6, 8a, 8b, 10, 11, 14			
14	Use as a fuel	3	NA	NA	1, 2, 3, 8a, 8b, 16	7	NA	ES5264
15	Use as a fuel	22	NA	NA	1, 2, 3, 8a, 8b, 16	9a, 9b	NA	ES5286
16	Use as a fuel	21	NA	13	NA	9a, 9b	NA	ES5535
17	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	NA	ES5258
18	Use as lubricants	22	NA	NA	1, 2, 3, 4, 8a, 8b, 9, 10, 11, 13, 17, 18, 20	8a, 8d, 9a, 9b	NA	ES5279
19	Use as lubricants	21	NA	1, 24, 31	NA	8a, 8d, 9a, 9b	NA	ES5520
20	Use as Functional Fluids	3	NA	NA	1, 2, 3, 4, 8a, 8b, 9	7	NA	ES5266
21	Use as Functional Fluids	22	NA	NA	1, 2, 3, 8a, 9, 20	9a, 9b	NA	ES5288
22	Use as Functional Fluids	21	NA	16, 17	NA	9a, 9b	NA	ES5533
23	Use in laboratories	3	NA	NA	10, 15	2, 4	NA	ES5268
24	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES5292
25	Use in metal working fluids / rolling oils	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17	4	NA	ES5260
26	Use in metal working fluids / rolling oils	22	NA	NA	1, 2, 3, 8a, 8b, 9, 10, 11, 13, 17	8a, 8d	NA	ES5282
27	Use in road and construction applications	22	NA	NA	8a, 8b, 10, 11, 13	8d, 8f	NA	ES5290
28	Other consumer uses	21	NA	28, 39	NA	8a, 8d	NA	ES7865

1. Short title of Exposure Scenario 1: Manufacture of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Activity	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container)

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4		
Amount used	Maximum daily site tonnage (kg/day):	45000 kg/day
	Regional use tonnage (tons/year):	4500 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	4500 ton(s)/year
Frequency and duration of use	Continuous exposure	100 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	5,0 .10-2
	Emission or Release Factor: Water	3,0 .10-5

	Emission or Release Factor: Soil	1,0 .10-4
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	10.000 m3/d
	Degradation efficiency	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	During manufacturing no waste of the substance is generated.
Conditions and measures related to external recovery of waste	Recovery Methods	During manufacturing no waste of the substance is generated.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion	General exposures (closed systems)	Handle substance within a closed system.(PROC1)

from source towards the worker	General exposures (closed systems) Use in contained batch processes	Handle substance within a closed system.(PROC2)
	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	4300000 kg/day	---

ESVOC spERC 1.1v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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: Distribution of substance		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC3: Formulation in materials ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b: Industrial use of reactive processing aids ERC6c: Industrial use of monomers for manufacture of thermoplastics ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC7: Industrial use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7		
Amount used	Maximum daily site tonnage (kg/day):	42 kg/day
	Regional use tonnage (tons/year):	422 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,002
	Annual site tonnage (tons/year):	0,84 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not	Dilution Factor (River)	10

influenced by risk management	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0 .10-3
	Emission or Release Factor: Water	1,0 .10-6
	Emission or Release Factor: Soil	1,0 .10-5
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).

	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC3)
	Storage	Store substance within a closed system. Transfer via enclosed lines.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	620000 kg/day	---

ESVOC spERC 1.1b.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 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	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2		
Amount used	Maximum daily site tonnage (kg/day):	1200 kg/day
	Regional use tonnage (tons/year):	120 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	120 ton(s)/year
Frequency and duration of use	Continuous exposure	100 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	2,5 .10-2
	Emission or Release Factor: Water	2,0 .10-5
	Emission or Release	1,0 .10-4

	Factor: Soil	
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion	General exposures	Handle substance within a closed system.(PROC1)

from source towards the worker	(closed systems)	
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC3)
	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	1300000 kg/day	---

ESVOC spERC 2.2.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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: Rubber production and processing	
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) SU11: Manufacture of rubber products
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent PROC21: Low energy manipulation of substances bound in materials and/or articles
Environmental Release Categories	ERC1: Manufacture of substances ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4, ERC6d		
Amount used	Maximum daily site tonnage (kg/day):	250 kg/day
	Regional use tonnage (tons/year):	5 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	5 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year

Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0 .10-2
	Emission or Release Factor: Water	3,0 .10-5
	Emission or Release Factor: Soil	1,0 .10-4
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC15, PROC21

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Bulk weighing	Handle substance within a closed system.(PROC1)
	Bulk weighing	Handle substance within a closed system.(PROC2)
	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	850000 kg/day	---

ESVOC spERC 4.19a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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: Polymer processing	
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	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations 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) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC21: Low energy manipulation of substances bound in materials and/or articles
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	Maximum daily site tonnage (kg/day):	1600 kg/day
	Regional use tonnage (tons/year):	32 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	32 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	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	1,0 .10-5
	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 80 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC21		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.
Technical conditions and measures to control dispersion from source towards the worker	No other specific measures identified.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	24000000 kg/day	---

ESVOC spERC 4.21a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
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: Uses in coatings		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation 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		
Amount used	Maximum daily site tonnage (kg/day):	15000 kg/day
	Regional use tonnage (tons/year):	300 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	300 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,8 .10-1
	Emission or Release Factor: Water	7,0 .10-5

	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 90 %)
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 8,4 %)
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions	Assumes use at not more than 20°C above ambient temperature, unless stated	

affecting workers exposure	differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems) with sample collection	Handle substance within a closed system.(PROC2)
	Material transfers	Clear transfer lines prior to de-coupling.(PROC8a)
	Material transfers	Clear transfer lines prior to de-coupling.(PROC8b)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	370000 kg/day	---

ESVOC spERC 4.3a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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: Uses in coatings		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available	
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	Maximum daily site tonnage (kg/day):	0,36 kg/day
	Regional use tonnage (tons/year):	260 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,13 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,8 .10-1
	Emission or Release Factor: Water	1,0 .10-2
	Emission or Release Factor: Soil	1,0 .10-2
	initial release prior to RMM	

Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Soil	Risk from environmental exposure is driven by 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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Outdoor(PROC11)	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	Filling / preparation of equipment from drums or containers	Handle substance within a closed system.(PROC2)

General exposures (closed systems) Use in contained systems	Handle substance within a closed system.(PROC2)
Manual Spraying Indoor.	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC11)
Manual Spraying Outdoor.	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC11)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	2400 kg/day	---

ESVOC spERC 8.3b.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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: Uses in coatings		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC4: Anti-freeze and de-icing products PC8: Biocidal products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC15: Non-metal-surface treatment products PC18: Ink and toners PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC31: Polishes and wax blends PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids	
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	Maximum daily site tonnage (kg/day):	0,055 kg/day
	Regional use tonnage (tons/year):	40 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,02 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,9 .10-1
	Emission or Release Factor: Water	1,0 .10-2
	Emission or Release Factor: Soil	5,0 .10-3
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and	Water	Risk from environmental exposure is driven by freshwater.

measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		
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
	Percentage removed from waste water	96,2 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	9 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.3 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%

	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	6,39 kg
Frequency and duration of use	Frequency of use	1 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.4 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	85,05 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.5 Contributing scenario controlling consumer exposure for: PC1: Sealants		
Product characteristics	Concentration of the Substance in	Covers concentrations up to 30%

	Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	75 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.6 Contributing scenario controlling consumer exposure for: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	1,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.7 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the	Covers concentrations up to 10%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2 kg
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.8 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	4 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	15 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 214,4 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.9 Contributing scenario controlling consumer exposure for: PC8: Laundry and dish washing		

products		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	30 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.10 Contributing scenario controlling consumer exposure for: PC8: Cleaners, liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
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	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

protection and hygiene)		
2.11 Contributing scenario controlling consumer exposure for: PC8: Cleaners, trigger sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.12 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint, PC15: Waterborne latex wall paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,76 kg
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related	Consumer Measures	No specific risk management measure identified

to protection of consumer (e.g. behavioural advice, personal protection and hygiene)		beyond those operational conditions stated.
2.13 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint, PC15: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 27,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	744 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.14 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can, PC15: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	215 g
Frequency and duration of use	Frequency of use	2 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational	Room size	34 m3

conditions affecting consumers exposure	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.15 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover), PC15: Removers (paint-, glue-, wall paper-, sealant remover)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	491 g
Frequency and duration of use	Frequency of use	3 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.16 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	85 g
Frequency and duration of use	Frequency of use	12 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by	Exposed skin areas	Covers skin contact area up to 35,73 cm²

risk management		
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.17 Contributing scenario controlling consumer exposure for: PC9b: Plasters and floor equalizers		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	13,8 kg
Frequency and duration of use	Frequency of use	12 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.18 Contributing scenario controlling consumer exposure for: PC9b: Modelling clay		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	1 g
	(swallowed)	
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day

	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.19 Contributing scenario controlling consumer exposure for: PC9c: Finger paints		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	1,35 g
	(swallowed)	
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.20 Contributing scenario controlling consumer exposure for: PC18		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	40 g

Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 71,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.21 Contributing scenario controlling consumer exposure for: PC23: Polishes, wax/cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	56 g
Frequency and duration of use	Frequency of use	29 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	73,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.22 Contributing scenario controlling consumer exposure for: PC23: Polishes, spray (furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa

Amount used	Amount used per event	56 g
Frequency and duration of use	Frequency of use	8 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.23 Contributing scenario controlling consumer exposure for: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.24 Contributing scenario controlling consumer exposure for: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 Pa
Amount used	Amount used per event	34 g
Frequency and duration of use	Frequency of use	10 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.25 Contributing scenario controlling consumer exposure for: PC24: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.26 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%

	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	142 g
Frequency and duration of use	Frequency of use	29 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	73,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	8 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.28 Contributing scenario controlling consumer exposure for: PC34

Product characteristics	Concentration of the	Covers concentrations up to 10%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	115 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	640 kg/day	---

ESVOC spERC 8.3c.v1 has been used to evaluate the exposure for the environment.

Consumers

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

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

1. Short title of Exposure Scenario 9: Use in Cleaning Agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
Amount used	Maximum daily site tonnage (kg/day):	1000 kg/day
	Regional use tonnage (tons/year):	38 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	38 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0
	Emission or Release Factor: Water	3,0 .10-7
	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 70 %)
	Water	No wastewater treatment required.

measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Soil	Risk from environmental exposure is driven by 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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
3. Exposure estimation and reference to its source		
Environment		

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	13000000 kg/day	---

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

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 Cleaning Agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	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	Maximum daily site tonnage (kg/day):	0,043 kg/day
	Regional use tonnage (tons/year):	31 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,016 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	2,0 .10-2
	Emission or Release Factor: Water	1,0 .10-6
	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.

measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Cleaning with high pressure washers Spraying Indoor.	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Limit the substance content in the mixture to 25 %.(PROC11)
	Cleaning with high pressure washers	Ensure operation is undertaken outdoors. or

Spraying Outdoor.	Limit the substance content in the mixture to 25 %.(PROC11)
Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	650 kg/day	---

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

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 in Cleaning Agents		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC3: Air care products PC4: Anti-freeze and de-icing products PC8: Biocidal products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based products) PC38: Welding and soldering products (with flux coatings or flux cores), flux products	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Amount used	Maximum daily site tonnage (kg/day):	0,01 kg/day
	Regional use tonnage (tons/year):	7,6 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0038 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,5 .10-1
	Emission or Release Factor: Water	2,5 .10-2
	Emission or Release Factor: Soil	2,5 .10-2
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Water	Risk from environmental exposure is driven by freshwater.

Organizational measures to prevent/limit release from the site		
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
	Percentage removed from waste water	96,2 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling consumer exposure for: PC3: Aircare, instant action (aerosol sprays)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,1 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	4 Times per day
	Exposure duration per event	15 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.3 Contributing scenario controlling consumer exposure for: PC3: Aircare, continuous action (solid & liquid)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,48 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	480 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,7 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.4 Contributing scenario controlling consumer exposure for: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	1,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.5 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of	liquid

	use)	
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2 kg
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.6 Contributing scenario controlling consumer exposure for: PC4: Lock de-icer		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	4 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	15 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 214,4 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.7 Contributing scenario controlling consumer exposure for: PC8: Laundry and dish washing products		
Product characteristics	Concentration of the Substance in	Covers concentrations up to 5%

	Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	30 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.8 Contributing scenario controlling consumer exposure for: PC8: Cleaners, liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
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	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.9 Contributing scenario controlling consumer exposure for: PC8: Cleaners, trigger sprays		
Product characteristics	Concentration of the	Covers concentrations up to 15%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,76 kg
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.11 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 27,5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	744 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.12 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	215 g
Frequency and duration of use	Frequency of use	2 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g.	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

behavioural advice, personal protection and hygiene)		

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	491 g
Frequency and duration of use	Frequency of use	3 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.14 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	85 g
Frequency and duration of use	Frequency of use	12 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.15 Contributing scenario controlling consumer exposure for: PC9b: Plasters and floor equalizers

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	13,8 kg
Frequency and duration of use	Frequency of use	12 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.16 Contributing scenario controlling consumer exposure for: PC9b: Modelling clay

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	1 g
	(swallowed)	
	Amount used per event	13,8 kg
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	480 min

Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.17 Contributing scenario controlling consumer exposure for: PC9c		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	1,35 g
	(swallowed)	
	Amount used per event	13,8 kg
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	480 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 254,4 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.18 Contributing scenario controlling consumer exposure for: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Frequency of use	4 days/year

	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.19 Contributing scenario controlling consumer exposure for: PC24: Pastes

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	34 g
Frequency and duration of use	Frequency of use	10 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.20 Contributing scenario controlling consumer exposure for: PC24: Sprays

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g

Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	30 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid

	Vapour pressure	> 10 Pa
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	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.24 Contributing scenario controlling consumer exposure for: PC38

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%

	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	12 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	140 kg/day	---

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

Consumers

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

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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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

1. Short title of Exposure Scenario 12: Use as binders and release agents	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC7: Industrial spraying PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation
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	Maximum daily site tonnage (kg/day):	1700 kg/day
	Regional use tonnage (tons/year):	35 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	35 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0
	Emission or Release Factor: Water	3,0 .10-7
	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 80 %)

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Soil	Risk from environmental exposure is driven by 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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC10, PROC13, PROC14

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	19000000 kg/day	---

ESVOC spERC 4.10a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 binders and release agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation	
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	Maximum daily site tonnage (kg/day):	0,00082 kg/day
	Regional use tonnage (tons/year):	0,6 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0003 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,5 .10-1
	Emission or Release Factor: Water	2,5 .10-2
	Emission or Release Factor: Soil	2,5 .10-2
	initial release prior to RMM	
Technical conditions and measures at process level	Air	Treat air emission to provide a typical removal

(source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC10, PROC11, PROC14

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Bulk transfers (closed systems)	Transfer via enclosed lines.(PROC1)
	Bulk transfers (closed systems)	Transfer via enclosed lines.(PROC2)
	Bulk transfers (closed systems)	Transfer via enclosed lines.(PROC3)

Casting operations (open systems) Elevated temperature	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Avoid carrying out operation for more than 4 hours.(PROC6)
Spraying Machine	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Avoid carrying out operation for more than 4 hours.(PROC11)
Spraying Manual	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Avoid carrying out operation for more than 4 hours.(PROC11)
Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	12 kg/day	---

ESVOC spERC 8.10b.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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: Use as a fuel		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) 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 PROC16: Using material as fuel sources, limited exposure to unburned product to be expected	
Environmental Release Categories	ERC7: Industrial use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC7		
Amount used	Maximum daily site tonnage (kg/day):	500 kg/day
	Regional use tonnage (tons/year):	10 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	10 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	5,0 .10-2
	Emission or Release Factor: Water	1,0 .10-5
	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 95 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Organizational measures to prevent/limit release from the site	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Combustion emissions limited by required exhaust emission controls., Combustion emissions considered in regional exposure assessment.
Conditions and measures related to external recovery of waste	Recovery Methods	This substance is consumed during use and no waste of the substance is generated.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC3)
	Bulk transfers	Handle substance within a closed system.(PROC8b)
	Use as a fuel (closed systems)	Handle substance within a closed system.(PROC16)

	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	2600000 kg/day	---

ESVOC spERC 7.12a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 15: Use as a fuel		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) 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 PROC16: Using material as fuel sources, limited exposure to unburned product to be expected	
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b		
Amount used	Maximum daily site tonnage (kg/day):	0,014 kg/day
	Regional use tonnage (tons/year):	10 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,005 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0 .10-3
	Emission or Release Factor: Water	1,0 .10-5
	Emission or Release Factor: Soil	1,0 .10-5
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Organizational measures to prevent/limit release from the site	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Combustion emissions limited by required exhaust emission controls., Combustion emissions considered in regional exposure assessment.
Conditions and measures related to external recovery of waste	Recovery Methods	This substance is consumed during use and no waste of the substance is generated.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC3)
	Bulk transfers	Handle substance within a closed system. Clear transfer lines prior to de-coupling.(PROC8b)
	Use as a fuel (closed systems)	Handle substance within a closed system.(PROC16)
	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	210 kg/day	---

ESVOC spERC 9.12b.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 16: Use as a fuel		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC13: Fuels	
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b		
Amount used	Maximum daily site tonnage (kg/day):	0,014 kg/day
	Regional use tonnage (tons/year):	10 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,005 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0 .10-3
	Emission or Release Factor: Water	1,0 .10-5
	Emission or Release Factor: Soil	1,0 .10-5
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	Risk from environmental exposure is driven by freshwater.
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
	Percentage removed from waste water	96,2 %

Conditions and measures related to external treatment of waste for disposal	Waste treatment	Combustion emissions limited by required exhaust emission controls., Combustion emissions considered in regional exposure assessment.
Conditions and measures related to external recovery of waste	Recovery Methods	This substance is consumed during use and no waste of the substance is generated.
2.2 Contributing scenario controlling consumer exposure for: PC13: Liquid: Automotive Refuelling		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	37,5 kg
Frequency and duration of use	Frequency of use	52 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	3 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm²
Other given operational conditions affecting consumers exposure	Room size	100 m3
	Covers outdoor use.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.3 Contributing scenario controlling consumer exposure for: PC13: Liquid: Scooter Refuelling		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	3,75 kg
Frequency and duration of use	Frequency of use	52 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	1,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm²

Other given operational conditions affecting consumers exposure	Room size	100 m3
	Covers outdoor use.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.4 Contributing scenario controlling consumer exposure for: PC13: Liquid: Garden Equipment - Use		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	750 g
Frequency and duration of use	Frequency of use	26 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Other given operational conditions affecting consumers exposure	Room size	100 m3
	Covers outdoor use.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.5 Contributing scenario controlling consumer exposure for: PC13: Liquid: Garden Equipment - Refueling		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	750 g
Frequency and duration of use	Frequency of use	26 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	1,8 min
Human factors not influenced by	Exposed skin areas	Covers skin contact area up to 420 cm²

risk management		
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.6 Contributing scenario controlling consumer exposure for: PC13: Liquid: home space heater fuel		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	3 kg
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	1,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.7 Contributing scenario controlling consumer exposure for: PC13: Liquid: Lamp oil		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	100 g
Frequency and duration of use	Frequency of use	52 days/year
	Frequency of use	1 Times per day
	Exposure duration per	0,6 min

	event	
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	210 kg/day	---

ESVOC spERC 9.12c.v1 has been used to evaluate the exposure for the environment.

Consumers

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

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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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

1. Short title of Exposure Scenario 17: Use as lubricants	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions
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		
Amount used	Maximum daily site tonnage (kg/day):	1200 kg/day
	Regional use tonnage (tons/year):	24 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	24 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0 .10-2
	Emission or Release Factor: Water	3,0 .10-6
	Emission or Release Factor: Soil	1,0 .10-3

	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 70 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	8500000 kg/day	---

ESVOC spERC 4.6a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 18: Use as lubricants		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b		
Amount used	Maximum daily site tonnage (kg/day):	0,016 kg/day
	Regional use tonnage (tons/year):	12 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0059 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	4,0 .10-1 (ERC8a, ERC8d)

	Emission or Release Factor: Water	5,0 .10-2 (ERC8a, ERC8d)
	Emission or Release Factor: Soil	5,0 .10-2 (ERC8a, ERC8d)
	initial release prior to RMM (ERC8a, ERC8d)	
	Emission or Release Factor: Air	1,0 .10-2 (ERC9a, ERC9b)
	Emission or Release Factor: Water	1,0 .10-2 (ERC9a, ERC9b)
	Emission or Release Factor: Soil	1,0 .10-2 (ERC9a, ERC9b)
	initial release prior to RMM (ERC9a, ERC9b)	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20		
Product characteristics	Concentration of the Substance in	Covers percentage substance in the product up to 100 % (unless stated differently).

	Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC3)
	Maintenance of small items Elevated temperature Non-dedicated facility	Drain down system prior to equipment break-in or maintenance.(PROC8a)
	Spraying	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC11)
	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	---	---	Msafe	170 kg/day	---
ERC9a, ERC9b	---	---	Msafe	220 kg/day	---

ESVOC spERC 8.6c.v1 has been used to evaluate the exposure for the environment. ESVOC spERC 9.6b.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

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

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 19: Use as lubricants		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC24: Lubricants, greases, release products PC31: Polishes and wax blends	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b		
Amount used	Maximum daily site tonnage (kg/day):	0,0068 kg/day
	Regional use tonnage (tons/year):	5 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0025 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	4,0 .10-1 (ERC8a, ERC8d)
	Emission or Release Factor: Water	5,0 .10-2 (ERC8a, ERC8d)
	Emission or Release Factor: Soil	5,0 .10-2 (ERC8a, ERC8d)
	initial release prior to RMM (ERC8a, ERC8d)	
	Emission or Release Factor: Air	1,0 .10-2 (ERC9a, ERC9b)
	Emission or Release Factor: Water	1,0 .10-2 (ERC9a, ERC9b)
	Emission or Release Factor: Soil	1,0 .10-2 (ERC9a, ERC9b)
	initial release prior to RMM (ERC9a, ERC9b)	
Technical conditions and measures at process level (source) to prevent release	Water	Risk from environmental exposure is driven by freshwater.

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		
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
	Percentage removed from waste water	96,2 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	9 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.3 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)		
Product characteristics	Concentration of the Substance in	Covers concentrations up to 30%

	Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	6,39 kg
Frequency and duration of use	Frequency of use	1 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.4 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	85,05 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.5 Contributing scenario controlling consumer exposure for: PC1: Sealants		
Product characteristics	Concentration of the	Covers concentrations up to 30%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	75 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	60 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.6 Contributing scenario controlling consumer exposure for: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.7 Contributing scenario controlling consumer exposure for: PC24: Pastes		

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	34 g
Frequency and duration of use	Frequency of use	10 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	360 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.
2.8 Contributing scenario controlling consumer exposure for: PC24: Sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.9 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	142 g
Frequency and duration of use	Frequency of use	29 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	73,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

2.10 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	8 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	19,8 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related	Consumer Measures	No specific risk management measure identified

to protection of consumer (e.g. behavioural advice, personal protection and hygiene)		beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8a, ERC8d	---	---	Msafe	100 kg/day	---
ERC9a, ERC9b	---	---	Msafe	88 kg/day	---

ESVOC spERC 8.6e.v1 has been used to evaluate the exposure for the environment. ESVOC spERC 9.6d.v1 has been used to evaluate the exposure for the environment.

Consumers

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

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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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

1. Short title of Exposure Scenario 20: Use as Functional Fluids		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC7: Industrial use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC7		
Amount used	Maximum daily site tonnage (kg/day):	250 kg/day
	Regional use tonnage (tons/year):	5 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	5 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	1,0 .10-2
	Emission or Release Factor: Water	3,0 .10-6
	Emission or Release Factor: Soil	1,0 .10-3
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant,

discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
3. Exposure estimation and reference to its source		
Environment		

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	2700000 kg/day	---

ESVOC spERC 7.13a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 21: Use as Functional Fluids		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems	
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b		
Amount used	Maximum daily site tonnage (kg/day):	0,0055 kg/day
	Regional use tonnage (tons/year):	4 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,002 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	5,0 .10-2
	Emission or Release Factor: Water	2,5 .10-2
	Emission or Release Factor: Soil	2,5 .10-2
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.

Organizational measures to prevent/limit release from the site	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC9, PROC20

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	77 kg/day	---

ESVOC spERC 9.13b.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 22: Use as Functional Fluids		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC16: Heat transfer fluids PC17: Hydraulic fluids	
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b		
Amount used	Maximum daily site tonnage (kg/day):	0,0027 kg/day
	Regional use tonnage (tons/year):	2 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,001 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	5,0 .10-2
	Emission or Release Factor: Water	2,5 .10-2
	Emission or Release Factor: Soil	2,5 .10-2
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	Risk from environmental exposure is driven by freshwater.
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
	Percentage removed	96,2 %

	from waste water	
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling consumer exposure for: PC16, PC17		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 100%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10,2 min
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	40 kg/day	---

ESVOC spERC 9.13c.v1 has been used to evaluate the exposure for the environment.

Consumers

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

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.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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

1. Short title of Exposure Scenario 23: Use in laboratories		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4		
Amount used	Maximum daily site tonnage (kg/day):	30 kg/day
	Regional use tonnage (tons/year):	0,6 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	0,6 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	2,5 .10-2
	Emission or Release Factor: Water	2,0 .10-2
	Emission or Release Factor: Soil	1,0 .10-4
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	1300 kg/day	---

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may

be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 24: Use in laboratories		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
Amount used	Maximum daily site tonnage (kg/day):	0,0011 kg/day
	Regional use tonnage (tons/year):	0,8 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0004 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	5,0 .10-1
	Emission or Release Factor: Water	5,0 .10-1
	Emission or Release Factor: Soil	0
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	13 kg/day	---

ESVOC spERC 8.17.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

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

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 25: Use in metal working fluids / rolling oils		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC17: Lubrication at high energy conditions and in partly open process	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
Amount used	Maximum daily site tonnage (kg/day):	740 kg/day
	Regional use tonnage (tons/year):	15 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	1
	Annual site tonnage (tons/year):	15 ton(s)/year
Frequency and duration of use	Continuous exposure	20 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	2,0 .10-2
	Emission or Release Factor: Water	3,0 .10-6
	Emission or Release Factor: Soil	0

	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 70 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Prevent discharge of undissolved substance to or recover from onsite wastewater.
	Sediment	Risk from environmental exposure is driven by freshwater sediment.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)

General exposures (closed systems)	Handle substance within a closed system.(PROC2)
General exposures (closed systems)	Handle substance within a closed system.(PROC3)
Bulk transfers	Clear transfer lines prior to de-coupling.(PROC8b)
Treatment by dipping and pouring	Allow time for product to drain from workpiece.(PROC13)
Storage	Store substance within a closed system. Transfer via enclosed lines.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	8500000 kg/day	---

ESVOC spERC 4.7a.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 26: Use in metal working fluids / rolling oils		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC17: Lubrication at high energy conditions and in partly open process	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Amount used	Maximum daily site tonnage (kg/day):	0,01 kg/day
	Regional use tonnage (tons/year):	7,4 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0037 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	4,0 .10-1
	Emission or Release Factor: Water	5,0 .10-2
	Emission or Release Factor: Soil	5,0 .10-2
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Risk from environmental exposure is driven by freshwater.
	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
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, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	General exposures (closed systems)	Handle substance within a closed system.(PROC3)
	Spraying	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC11)

	Storage	Store substance within a closed system.(PROC1, PROC2)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	120 kg/day	---

ESVOC spERC 8.7c.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
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 27: Use in road and construction applications		
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 PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
2.1 Contributing scenario controlling environmental exposure for: ERC8d, ERC8f		
Amount used	Maximum daily site tonnage (kg/day):	0,01 kg/day
	Regional use tonnage (tons/year):	7,5 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0038 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,5 .10-1
	Emission or Release Factor: Water	4,0 .10-2
	Emission or Release Factor: Soil	1,0 .10-2
	initial release prior to RMM	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Treat air emission to provide a typical removal efficiency of (%): (Efficiency: 0 %)
	Water	No wastewater treatment required.
	Water	If discharging to domestic sewage treatment plant, no onsite wastewater treatment required.
	Water	Risk from environmental exposure is driven by freshwater.

	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	96,2 %
	Percentage removed from waste water	96,2 %
	Sludge Treatment	Do not apply industrial sludge to natural soils., Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC10, PROC11, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	0,5 - 10 kPa
Frequency and duration of use	Frequency of use	8 hours/day
Other operational conditions affecting workers exposure	Outdoor(PROC11)	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	Spraying/ fogging by machine application	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC11)
	Spraying/ fogging by machine application Elevated temperature	Ensure operation is undertaken outdoors.(PROC11)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR

---	---	---	Msafe	150 kg/day	---

ESVOC spERC 8.15.v1 has been used to evaluate the exposure for the environment.

Workers

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

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

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
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 28: Other consumer uses		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC28: Perfumes, fragrances PC39: Cosmetics, personal care products	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
Amount used	Maximum daily site tonnage (kg/day):	0,00027 kg/day
	Regional use tonnage (tons/year):	0,2 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
	Fraction of Regional tonnage used locally:	0,0005
	Annual site tonnage (tons/year):	0,0001 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	9,5 .10-1
	Emission or Release Factor: Water	2,5 .10-2
	Emission or Release Factor: Soil	2,5 .10-2
	initial release prior to RMM	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Domestic sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Percentage removed from waste water	96,2 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling consumer exposure for: PC28, PC39		

Consumer uses e.g. as a carrier in cosmetics/personal care products, perfumes and fragrances. Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	---	Msafe	4,2 kg/day	---

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

Consumers

No exposure assessment presented for human health.

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

COMPANY INFORMATION DISTRIBUTOR		
name	**BRENNTAG N.V.**	**BRENNTAG Nederland B.V.**
address	Nijverheidslaan 38 8540 Deerlijk	Donker Duyvisweg 44 3316 BM Dordrecht
country	Belgium	The Netherlands
phone number	+32 (0)56 77 69 44	+31 (0)78 65 44 944
fax number	+32 (0)56 77 57 11	+31 (0)78 65 44 919
website	www.brenntag.be	www.brenntag.nl
e-mail	info@brenntag.be	info@brenntag.nl
activities	Distribution and export of chemicals and raw materials	
VAT number	BE0405317567	NL001375945B01
recall procedure available	Yes	
emergency number (24/365)	+32 (0)56 77 69 44	+31 (0)78 6544 944
QUALITY SYSTEMS		
ISO 9001	Yes	Yes
ISO 14001	Yes	Yes
ISO 22000	Yes	Yes
FSSC 22000	Yes	Yes
GMP+ -feed	Yes	Yes
OHSAS18001	-	Yes
ESAD	Yes	Yes
other	-	AEO