

**1.0 PRODUCT NAME AND SUPPLIER:**

Trade Name: PAT®-527/2  
 Use Conditions: Lubricant- and Release Agent-Preparation for industrial applications for the processing of plastics, in general manufacturing (e.g. machinery, vehicles / car manufacture, transport equipment / aerospace etc.) and in construction by trained staff  
 Application Domains: When revising this safety data sheet no indication existed referring to restrictions of the ingredients with respect to certain applications. Identified sectors of end-use: e.g. SU3 (industrial uses), SU21 (consumer uses); identified product categories: e.g. PC24 (release products); identified process categories: e.g. PROC1 (closed processes), PROC7 (industrial spraying), PROC8a/8b/9 (transfer into small containers), PROC10 (application by roller or brushing), PROC11 (non-industrial spraying), PROC13 (dipping and pouring); identified environmental release categories: e.g. ERC1, ERC2, ERC4, ERC5, ERC6a, ERC8a, ERC8d.  
 Supplier: E. und P. Würtz GmbH &Co. KG  
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**2.0 HAZARDS IDENTIFICATION:**

**Labeling and Classification according to Directive EU No. 1272 / 2008 (CLP)**



GHS-Labels: (GHS02) (GHS07) (GHS08) (GHS09)  
 Code: DANGER  
 Hazard Indications: H 225 Highly flammable liquid and vapour  
 H 304 May be fatal if swallowed and enters airways  
 H 336 May cause drowsiness or dizziness  
 H 411 Toxic to aquatic life with long lasting effects  
 Safety Statements (prevention): P 210 Keep away from heat/sparks/open flames/hot surfaces. No smoking  
 P 233 Keep container tightly closed.  
 P 240 Ground/bond container and receiving equipment.  
 P 241 Use explosion-proof electrical/ventilating/lighting equipment.  
 P 242 Use only non-sparking tools.  
 P 243 Take precautionary measures against static discharge  
 P 261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
 P 262 Do not get in eyes, on skin, or on clothing.  
 P 264 Wash thoroughly with plenty of water and soap after handling.  
 P 270 Do not eat, drink or smoke when using this product.  
 P 273 Avoid release to the environment.  
 P 280 Wear protective gloves/protective clothing/eye protection/face protection  
 P 281 Use personal protective equipment as required.  
 Safety Statements (response): P 301+P 330+P 331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P 310 Immediately call a POISON CENTER or doctor / physician.  
 P 303+P 361+P 353 IF ON SKIN (or hair): Remove / take off immediately all contaminated clothing. Rinse skin with water / shower.  
 P 370+P 378 In case of fire: Use CO<sub>2</sub> or foam for extinction.  
 Safety Statements (storage): P 403+P 235 Store in a well ventilated place. Keep cool.  
 P 405 Store locked up.  
 Safety Statements (disposal): P 501 Dispose of contents/container to a waste treatment plant  
 Hazard determining Component(s): Hydrocarbons  
 Classification: Flammable Liquids Category 2 H 225  
 Aspiration Category 1 H 304  
 Spec. Target-Organ-Tox. for unique exposition Category 3 H 336  
 Aquatic Toxicity Category 2 H 411  
 Other Hazards: None known.

<b>Labeling and Classification</b>	<b>according to HMIS</b>
Health	1 (slight)
Flammability	2 (moderate)
Reactivity	0 (minimal)
Chronic	0 (minimal)

**3.0 COMPOSITION / CHEMICAL DESCRIPTION:**

Chemical Description:	Dispersion of lubricants and release agents in solvents	
Hazardous Ingredients:	Description:	Hydrocarbons
	CAS-No.:	64742-49-0
	REACH-No.:	01-2119473851-33-XXXX
	Concentration:	> 25 %
Labeling:	H225 (category 2), H304 (category 1), H411 (category 2), H336 (category 3)	

**4.0 FIRST AID MEASURES:**

General Recommendations:	In case of contamination move away from product and take off immediately all contaminated clothing.
Inhalation:	In case of irritation, move to fresh air. If irritation persists, get medical attention.
Skin contact:	Wash off properly with water and soap. If skin irritation persists, get medical attention.
Eye contact:	Flush with large amounts of water for at least 15 minutes, keeping eyelids open. Get medical attention.
Ingestion:	Immediately clean mouth thoroughly with water. Do NOT induce vomiting. Consult medical doctor.
Specific Hazards / Effects:	Already small amounts of this product – having entered the lungs after ingestion and/or vomiting – may cause lung cancer or an inflammation of the lungs. Breathing of product vapors may cause drowsiness and dizziness.
Further information:	Treatment of symptoms and supportive therapy as indicated (decontamination, vital functions). Specific antidote: unknown.

**5.0 FIRE FIGHTING MEASURES:**

Extinguishing Media:	CO <sub>2</sub> , dry chemical, foam
Unsuitable Extinguishing Media:	water
Specific Hazards:	none known
Hazardous Combustion Products:	The typical combustion products like carbon-monoxide (CO) and carbon-dioxide (CO <sub>2</sub> ) may occur. In contact with air, vapors may form explosive mixtures.
Special Equipment:	Wear suitable respiratory equipment and fire-proof clothing.
Further Information:	Cool down containers close to fire by spraying water to the hull. Collect used extinguishing media and dispose of according to section 13.0.

**6.0 ACCIDENTAL RELEASE MEASURES:**

Personal Procedures:	Safeguard scene of accident / leakage / spill. Wear personal protective equipment. Avoid contact with skin and eyes, do not breathe vapors / fumes. See to an adequate ventilation.
Environmental Procedures:	Do not dispose of to drains, sewers or public waterways. Notify authorities in case of soil contamination.
Spill and Leak Procedures:	See to an adequate ventilation. Spills should be taken up mechanically with suitable absorbent and placed in suitable containers.
Further Information:	Dispose of contaminated product according to section 13.0.

**7.0 HANDLING AND STORAGE:**

General Recommendations:	The hygiene and safety procedures typical of working with chemicals should be followed. Avoid contact with skin and eyes. Safeguard scene of accident / leakage / spill. Do not smoke.
Hygiene Procedures:	Keep away from food stuffs, drinks and feed stuffs. Prior to pauses and after work thoroughly wash your hands. Do not smoke.
Protection against Explosion:	Storage class: 3 (flammable liquids). Follow directives for the storage of combustible products. Take precautionary measures against static discharges. Keep away from sources of ignition and static electrical charges. Avoid the formation of an explosive atmosphere. Protect against excessive heat. Employ explosion-proof equipment / machinery, only. Do not smoke.
Co-storage Information:	Do not store together with explosive or auto-igniting materials, nor with peroxides or strong oxidizers.
Further Information on storage conditions:	Store in a well ventilated, dry and cool place. Follow directives for the storage of combustible and water endangering products. Keep away from excessive heat.
Further Information:	Keep container well sealed. Employ product only in well ventilated places.

**8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION:**

Information on equipment:	see section 7.
Maximum Exposure Limits:	MEL (hydrocarbons): 1000 mg/m <sup>3</sup> or 200 ml/m <sup>3</sup> (TRGS 901) DNEL (workers, dermal contact, chronic effects): 773 mg/kg DNEL (workers, breathing, chronic effects): 2035 mg/m <sup>3</sup> PNEC: not applicable
General Hygiene and Protection Measures:	Do not eat, drink or smoke during work. Keep away from food stuffs, drinks and feed stuffs. Take off immediately all contaminated clothing. Avoid contact with skin and eyes. Wash hands thoroughly before pauses and after work.
Respiratory Equipment:	Wear mask with filter type A-P2 according to EN 14387; during intensive prolonged exposition, wear suitable respiratory equipment.
Skin Protection:	Wear suitable dissipative and chemically resistant gloves according to EN 388, EN 1149-1 and EN 1149-2 in conjunction with EN 374.
Eye Protection:	Wear safety glasses with side shields (f.i. according to EN 166)
Body Protection:	Wear antistatic shoes according to EN 20345, apron, suitable protective clothing
Further Information:	It is recommended to install an automatic eye-flush-system close to the working place. The personal protection equipment should match the actual working conditions in terms of its design and features. Due to the abundance of protective equipment / materials details on behalf of the personal protection equipment should be discussed with the suppliers of this equipment.

**9.0 PHYSICAL AND CHEMICAL PROPERTIES:**

Appearance / Color / Odor:	Liquid / colorless / mild
Boiling Point:	app. 100 °C
Flashpoint:	< 12 °C (DIN 51755)
Auto-Ignition:	ca. 250 °C
Explosion Limits:	lower: 0,7 Vol% upper: 8 Vol%
Vapor Pressure:	app. 10 hPa at 20 °C
Density:	ca. 0,7 kg/L
Solubility in water:	insoluble

**10.0 STABILITY AND REACTIVITY:**

Stability:	Stable in normal use. Keep away from direct heat.
Incompatibilities:	Sparks, flames, heat. Strong oxidizers
Hazardous Reactions:	In contact with air, vapors may form explosive mixtures.
Hazardous Decomposition Products:	None known in normal industrial use. In case of combustion carbon-monoxide (CO) and carbon-dioxide (CO <sub>2</sub> ) may be generated.

**11.0 TOXICOLOGICAL INFORMATION:**

All data have been derived of the ingredients' or similar products' data.	
Toxicity (oral)	LD <sub>50</sub> > 2.000mg/kg (rat, male)
Irritation:	Eyes: not irritant Skin: not irritant Inhalation: not irritant
Sensitization:	Not sensitizing.
Further Information:	Already small amounts of this product – having entered the lungs after ingestion and/or vomiting – may cause lung cancer or an inflammation of the lungs. Breathing of product vapors may cause drowsiness and dizziness. Further hazardous properties may exist.

**12. ECOLOGICAL INFORMATION:**

All data stem from results obtained for the ingredients or comparable products.	
Biologic Degradation:	All ingredients are biodegraded.
Bioaccumulation:	Not to be expected (evaporation).
Fish-Toxicity:	LC <sub>50</sub> > 10 mg/l
Algae-Toxicity:	EC <sub>50</sub> > 10 mg/l
Daphnia-Toxicity:	10 mg/l > EC <sub>50</sub> > 0,1 mg/l

**13. DISPOSAL CONSIDERATIONS:**

Product:	Waste disposal should be in accordance with existing Community, National and local regulations. Recommended: Incineration. Do not release to (public) waterways / drains. Do not release together with regular waste.
EAK-Number:	The classification has to be made according to the EAK-directive with respect to the area and process of application.
Empty container:	Recycling should be preferred over disposal. The disposal of empty containers must be in accordance with the requirements for the disposal of the product.

## Safety Data Sheet

E. u. P. Würtz GmbH & Co. KG

according to 1907/ 2006 EU and 1272/2008 EU

Page: 4 of 53  
Date of Print / Revision: 25-Jul-2018  
Product: PAT®-527/2

### 14. TRANSPORT INFORMATION:

ADR / RID: UN 1866 RESIN SOLUTION, 3, PG II, (D/E)  
EMS-Number: F-E, S-E Marine-Pollutant: No  
Label(s): Label No. 3 Dangerous to the environment



(Ground Transportation)

### 15. REGULATORY INFORMATION:

Labeling: This product requires labelling according to EU-directives.  
National Laws (Germany):  
Limitations of Employment: Follow JarbSchG and Mutterschutzrichtlinienverordnung (youth employment and pregnancy restrictions)  
Water-contaminating class (D, A, CH): WGK 1 slightly hazardous to water (VwVWS 17.05.1999)

### 16. OTHER INFORMATION :

All ingredients are TSCA- and EINECS-listed or exempted. We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind, expressed or implied, and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of their use. Such data is furnished solely for your consideration, investigation and verification. It is the obligation of the user to ensure that all legal requirements are fulfilled when this product is used.

# Safety Data Sheet

**E. u. P. Würtz GmbH & Co. KG**

according to 1907/ 2006 EU and 1272/2008 EU

Page: 5 of 53  
Date of Print / Revision: 25-Jul-2018  
Product: PAT®-527/2

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	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	NA	ES5258
5	Use as lubricants	21	NA	1, 24, 31	NA	8a, 8d, 9a, 9b	NA	ES5520
6	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
7	Use as Functional Fluids	3	NA	NA	1, 2, 3, 4, 8a, 8b, 9	7	NA	ES5266
8	Use as Functional Fluids	21	NA	16,17	NA	9a, 9b	NA	ES5533
9	Use as Functional Fluids	22	NA	NA	1, 2, 3, 8a, 9, 20	9a, 9b	NA	ES5288
10	Use in laboratories	3	NA	NA	10, 15	2, 4	NA	ES5268
11	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES5292
12	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
13	Use in metal working fluids / rolling oils	22	NA	NA	1, 2, 3, 8a, 8b, 9, 10, 11, 13, 17	8a, 8d	NA	ES5282
14	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	4	NA	ES5254
15	Uses in coatings	21	NA	1, 8, 9a, 9b, 18, 23, 24, 31, 34	NA	8a, 8d	NA	ES5295
16	Uses in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	8a, 8d	NA	ES5275
17	Use as binders and release agents	3	NA	NA	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	4	NA	ES5262
18	Use as binders and release agents	22	NA	NA	1, 2, 3, 4, 6, 8a, 8b, 10, 11, 14	8a, 8d	NA	ES5284
19	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

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 <sup>-2</sup>
	Emission or Release Factor: Water	3,0 .10 <sup>-5</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-4</sup>
	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 uses 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) 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 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 <sup>-3</sup>
	Emission or Release Factor: Water	1,0 .10 <sup>-6</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-5</sup>
	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 the 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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15</b>					
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 uses 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)			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	620000 kg/day	---
ESVOC spERC 1.1b.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
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	
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 tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
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 <sup>-2</sup>
	Emission or Release Factor: Water	2,0 .10 <sup>-5</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-4</sup>
	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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15</b>					
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.(PROC1, PROC2)			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific Conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>refe</b>
---	---	---	Msafe	1300000 kg/day	---
ESVOC spERC 2.2.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 4: 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 <sup>-2</sup>
	Emission or Release Factor: Water	3,0 .10 <sup>-6</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-3</sup>
	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.

<b>1. Short title of Exposure Scenario 5: Use as lubricants</b>		
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	
<b>2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b</b>		
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 <sup>-1</sup> (ERC8a, ERC8d)
	Emission or Release Factor: Water	5,0 .10 <sup>-2</sup> (ERC8a, ERC8d)
	Emission or Release Factor: Soil	5,0 .10 <sup>-2</sup> (ERC8a, ERC8d)
	initial release prior to RMM (ERC8a, ERC8d)	
	Emission or Release Factor: Air	1,0 .10 <sup>-2</sup> (ERC9a, ERC9b)
	Emission or Release Factor: Water	1,0 .10 <sup>-2</sup> (ERC9a, ERC9b)
	Emission or Release Factor: Soil	1,0 .10 <sup>-2</sup> (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	Water	Risk from environmental exposure is driven by the 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	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.

<b>2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.
<b>2.3 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.
<b>2.4 Contributing scenario controlling consumer exposure for: PC1: Glue from spray</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.



<b>2.5 Contributing scenario controlling consumer exposure for: PC1: Sealants</b>		
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	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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.
<b>2.6 Contributing scenario controlling consumer exposure for: PC24: Liquids</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	34 m <sup>3</sup>
	Covers use in a one car garage (34m <sup>3</sup> ) 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.
<b>2.7 Contributing scenario controlling consumer exposure for: PC24: Pastes</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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 cm <sup>2</sup>
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 cm <sup>2</sup>
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 cm <sup>2</sup>
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**

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
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 6: 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 <sup>-1</sup> (ERC8a, ERC8d)
	Emission or Release Factor: Water	5,0 .10 <sup>-2</sup> (ERC8a, ERC8d)
	Emission or Release Factor: Soil	5,0 .10 <sup>-2</sup> (ERC8a, ERC8d)
	initial release prior to RMM (ERC8a, ERC8d)	
	Emission or Release Factor: Air	1,0 .10 <sup>-2</sup> (ERC9a, ERC9b)
	Emission or Release Factor: Water	1,0 .10 <sup>-2</sup> (ERC9a, ERC9b)
	Emission or Release Factor: Soil	1,0 .10 <sup>-2</sup> (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 the 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 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 no 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 7: 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 <sup>-2</sup>
	Emission or Release Factor: Water	3,0 .10 <sup>-6</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-3</sup>
	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 the 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.

<b>1. Short title of Exposure Scenario 8: Use as Functional Fluids</b>		
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	
<b>2.1. Contributing scenario controlling environmental exposure for: ERC9a, ERC9b</b>		
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 <sup>-2</sup>
	Emission or Release Factor: Water	2,5 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	2,5 .10 <sup>-2</sup>
	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 the 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	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 cm <sup>2</sup>			
Other given operational conditions affecting consumers exposure	Room size	34 m <sup>3</sup>			
	Covers use in a one car garage (34m <sup>3</sup> ) 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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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 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 <sup>-2</sup>
	Emission or Release Factor: Water	2,5 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	2,5 .10 <sup>-2</sup>
	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.
	Sediment	Risk from environmental exposure is driven by the 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 10: 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 <sup>-2</sup>
	Emission or Release Factor: Water	2,0 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-4</sup>
	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					
<p>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 (<a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a>). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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</p>					
Additional good practice advice beyond the REACH Chemical Safety Assessment					
Assumes a good basic standard of occupational hygiene is implemented.					

<b>1. Short title of Exposure Scenario 11: Use in laboratories</b>		
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	
<b>2.1 Contributing scenario controlling environmental exposure for: ERC8a</b>		
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 <sup>-1</sup>
	Emission or Release Factor: Water	5,0 .10 <sup>-1</sup>
	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					
<p>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 (<a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a>). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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</p>					
Additional good practice advice beyond the REACH Chemical Safety Assessment					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 12: Use 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 <sup>-2</sup>
	Emission or Release Factor: Water	3,0 .10 <sup>-6</sup>
	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 no 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 13: 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 <sup>-1</sup>
	Emission or Release Factor: Water	5,0 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	5,0 .10 <sup>-2</sup>
	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 %)
	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 the freshwater.
Organizational measures to prevent/limit release from the site	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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC17</b>					
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)			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	120 kg/day	---
ESVOC spERC 8.7c.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ).					
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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a>					
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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 14: 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 tableting, compression, extrusion, pelletisation 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 <sup>-1</sup>
	Emission or Release Factor: Water	7,0 .10 <sup>-5</sup>
	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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15</b>					
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 no 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) 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)			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	370000 kg/day	---
ESVOC spERC 4.3a.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 15: 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	
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 <sup>-1</sup>
	Emission or Release Factor: Water	1,0 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	5,0 .10 <sup>-3</sup>
	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 the 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	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 cm <sup>2</sup>
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 cm <sup>2</sup>
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 cm <sup>2</sup>
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.

<b>2.5 Contributing scenario controlling consumer exposure for: PC1: Sealants</b>		
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	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 cm <sup>2</sup>
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.
<b>2.6 Contributing scenario controlling consumer exposure for: PC8: Cleaners, liquids</b>		
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 cm <sup>2</sup>
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.
<b>2.7 Contributing scenario controlling consumer exposure for: PC8: Cleaners, trigger sprays</b>		
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 cm <sup>2</sup>
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.
<b>2.8 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint, PC15: Solvent rich, high solid, water borne paint</b>		
	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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
		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: 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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	34 m <sup>3</sup>
		Covers use in a one car garage (34m <sup>3</sup> ) 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.

**2.10 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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
		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: 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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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: 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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.

**2.13 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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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: 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 cm <sup>2</sup>
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.
<b>2.15 Contributing scenario controlling consumer exposure for: PC24: Liquids</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34m <sup>3</sup> ) 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.
<b>2.16 Contributing scenario controlling consumer exposure for: PC24: Pastes</b>		
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 cm <sup>2</sup>
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.
<b>2.17 Contributing scenario controlling consumer exposure for: PC24: Sprays</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.
<b>2.18 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.
<b>2.19 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)</b>		
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 cm <sup>2</sup>
Other given operational conditions affecting consumers exposure	Room size	20 m <sup>3</sup>
	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.
<b>2.20 Contributing scenario controlling consumer exposure for: PC34</b>		
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	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 cm <sup>2</sup>

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.			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	640 kg/day	---
ESVOC spERC 8.3c.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 16: 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 <sup>-1</sup>
	Emission or Release Factor: Water	1,0 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-2</sup>
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 %)
	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.		
Organizational measures to prevent/limit release from the site	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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19</b>					
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)			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	2400 kg/day	---
ESVOC spERC 8.3b.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 17: 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 tableting, compression, extrusion, pelletisation	
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 <sup>-7</sup>
	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.
	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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC10, PROC13, PROC14</b>					
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)			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	19000000 kg/day	---
ESVOC spERC 4.10a.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 18: 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 tableting, compression, extrusion, pelletisation	
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 <sup>-1</sup>
	Emission or Release Factor: Water	2,5 .10 <sup>-2</sup>
	Emission or Release Factor: Soil	2,5 .10 <sup>-2</sup>
	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 %)
	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 the freshwater.
Organizational measures to prevent/limit release from the site	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.			
<b>2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC10, PROC11, PROC14</b>					
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,			
<b>3. Exposure estimation and reference to its source</b>					
<b>Environment</b>					
<b>Contributing Scenario</b>	<b>Specific conditions</b>	<b>Compartment</b>	<b>Value</b>	<b>Level of Exposure</b>	<b>RCR</b>
---	---	---	Msafe	12 kg/day	---
ESVOC spERC 8.10b.v1 has been used to evaluate the exposure for the environment.					
<b>Workers</b>					
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.					
<b>4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario</b>					
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 ( <a href="http://cefic.org/en/reach-for-industries-libraries.html">http://cefic.org/en/reach-for-industries-libraries.html</a> ). 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: <a href="http://www.ecetoc.org/tra">http://www.ecetoc.org/tra</a> 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					
<b>Additional good practice advice beyond the REACH Chemical Safety Assessment</b>					
Assumes a good basic standard of occupational hygiene is implemented.					

1. Short title of Exposure Scenario 19: 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 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 tableting, compression, extrusion, pelletisation 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 <sup>-2</sup>
	Emission or Release Factor: Water	3,0 .10 <sup>-5</sup>
	Emission or Release Factor: Soil	1,0 .10 <sup>-4</sup>
	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.