METHYL ETHYL KETONE

Code : 14066

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

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

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

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

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

1.1. Product identifier

* Chemical description : Methyl ethyl ketone , Butanone , MEK .

Type of product : Pure product .

* Reach registration number : 01-2119457290-43

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

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

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

1.3. Details of the supplier of the safety data sheet

Company identification : See heading of Material Safety Data Sheet.

1.4. Emergency telephone number

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

2. Hazards identification

2.1. Classification of the substance or mixture

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

F; R11
R66
R67
Xi; R36

Classification according to Regulation (EC) No 1272/2008

* Butanone

- Flammable liquids Cat.2 (H225_D)
- Eye irritation Cat.2 (H319_W)
- STOT Drowsiness-dizziness Cat.3 (H336_W)
- STOT (Repeated) Skin dryness-cracking (SP-R66)

2.2. Label elements

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

• Dangerous ingredient(s) : Butanone

* • Hazard pictogram(s)

* • Signal word : Danger

2. Hazards identification (continued)

* • Hazard statements : H225 - Highly flammable liquid and vapour. H319 - Causes serious eye irritation. H336 - May cause drowsiness or dizziness. EUH066 - Repeated exposure may cause skin dryness or cracking.

* • Precautionary statements

* - Prevention : P210 - Keep away from heat, sparks, open flames or hot surfaces. – No smoking. P261 - Avoid breathing dust, fume, gas, mist, vapours, spray.

* - Response : P303+P361+P353 - IF ON SKIN (or hair) : Remove immediately all contaminated clothing. Rinse skin with water/shower. P312 - Call a POISON CENTER or doctor if you feel unwell.

* - Storage : P233 - Keep container tightly closed. P403+P235 - Store in well-ventilated place. Keep cool.

* - Disposal considerations : P501 - Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

* Physical/chemical hazards : See above.

* Hazards for the health : The product may cause central nervous system depression.

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

* Hazards for the safety : Vapour is heavier than air and spreads along the ground with risk of ignition on distance.

3. Composition/information on ingredients

3.1. Substances

	Name component(s)		Weight %	CAS nr	EINECS nr	EC annex nr	Reach nr	CLASSIFICATION
*	Butanone	:	100 %	78-93-3	201-159-0	606-002-00-3	01-2119457290-43	F; R11 R66 R67 Xi; R36 ---------- Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 STOT SE EUH066

*

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

4. First aid measures

4.1. Description of first aid measures

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

First Aid Measures

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

- Skin Contact : Remove contaminated clothing.
Rinse skin immediately with plenty of water. (shower if necessary).
Consult doctor if irritation develops.

4. First aid measures (continued)

- Eye Contact : Rinse immediately thoroughly and long (at least 15 min.) with plenty of water.
  Remove contact lenses.
  Consult eye doctor.
  Do not use a neutralisation agent.
- Ingestion : DO NOT INDUCE VOMITING. Rinse mouth with water.
  Seek medical attention or take to hospital.

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

* See section 11.

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

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

5. Firefighting measures

5.1. Extinguishing media

Extinguishing Media

- Suitable : Powder , Alcohol resistant foam , Carbon dioxide , Water spray .
- Insuitable : Do not use a heavy water stream, in order to avoid the fire to extend.

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

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

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

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

Methods for Cleaning Up : Collect the spillage in closable, suitable disposal containers.
Clean up any spills as soon as possible, using an inert absorbent material and eliminate as hazardous waste. (See section 13)
Residue is to be washed down with plenty of water.

6.4. Reference to other sections

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

7. Handling and storage

7.1. Precautions for safe handling

* Handling : AVOID FOG TRANSFORMATION !
Avoid breathing vapour and contact with skin, eyes and clothing. Wear recommended personal protective equipment. (See section 8)

* Protection against Fire and Explosion : Eliminate every possible source of ignition (open fire, sparks, smoking, ...).
With a temperature equal to or higher than the flash point, the mixture steam-air may create a highly flammable and explosive mixture.
Use special care to avoid static electric discharges.
Do not use compressed air to either agitate or transfer contents of storage containers (tanks) / shipping drums containing this material.
Use explosionproof equipment.

7.2. Conditions for safe storage, including any incompatibilities

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

Packaging Material : Butyl rubber , Carbon steel , Polyester , Stainless steel , Teflon .

* Insuitable Packaging Material : EPDM , Natural rubber , Polyethylene , Polystyrene , PVA , PVC .

7.3. Specific end use(s)

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

8. Exposure controls/personal protection

8.1. Control parameters

* Occupational Exposure Limits : Butanone : Limit value (BE) : 200 ppm (600 mg/m³) (2009)
Butanone : Short time value (BE) : 300 ppm (900 mg/m³) (2009)
Butanone : Limit value (TWA 8 h) (NL) : 200 ppm (590 mg/m³) (2007) (H)
Butanone : Limit value (TWA 15 min) (NL) : 300 ppm (900 mg/m³) (2007) (H)
(H) The addition of an "H" indicates that the substance is relative easily absorped by the skin.

* Biological limit values : They will be included when available.

* DNELs :
- Butanone : Worker, long-term - systemic effects, dermal : 1161 mg/kg bw/ day
- Butanone : Worker, long-term - systemic effects, inhalation : 600 mg/m³
- Butanone : Consumer, long-term - systemic effects, dermal : 412 mg/kg bw/ day
- Butanone : Consumer, long-term - systemic effects, inhalation : 106 mg/m³
- Butanone : Consumer, long-term - systemic effects, oral : 31 mg/kg bw/ day

* PNECs :
- Butanone : Marine water : 55,8 mg/l
- Butanone : Fresh water : 55,8 mg/l
- Butanone : Intermittent release : 55,8 mg/l
- Butanone : Fresh water sediment : 284,7 mg/kg
- Butanone : Marine water sediment : 284,7 mg/kg
- Butanone : Soil : 22,5 mg/kg
- Butanone : Sewage treatment plant : 709 mg/l

8.2. Exposure controls

Engineering Measures : Ventilate area.

Industrial Hygiene : When using, do not eat, drink or smoke.
Emergency eye wash fountains and showers should be available in the immediate vicinity of any potential exposure.

8. Exposure controls/personal protection (continued)

Personal Protection Equipment

- Respiratory Protection : Ventilation , Local exhaust , Respiratory protection equipment (Filter type A).
- Skin and Body Protection : Suitable protective clothing .
- Hand Protection : Gloves (Butyl rubber , ...).
- Eye Protection : Closed safety glasses or face shield.

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

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State (20°C)	: Liquid .
Form/Colour	: Clear , Colourless .
Odour	: Characteristic odour .
* Odour threshold	: No data available.
* pH value	: Neutral.
Congealing/Melting point	: -86 °C
* Freezing point	: No data available.
Boiling Point/Range (1013 hPa)	: 79 - 81 °C
Flash point	: -4 °C
Evaporation rate	: 6 (n-Butyl acetate = 1)
Fire hazard	: P1
Explosion limits in air	: 1,8 - 11,5 vol.%
Vapour pressure (20°C)	: 105 mbar
Relative vapour density (air=1)	: 2,5
Relative density of saturated vapour/air mixture (air=1)	: 1,15
Relative density (water=1)	: 0,8
Soluble in	: Alcohol , Ether , ...
Solubility in water (20°C)	: 29 g/100 ml
Log P Octanol/Water (20°C)	: 0,3
Auto-ignition temperature	: 404 °C
Minimum ignition energy	: 0,27 mJ
* Decomposition temperature	: No data available.
Viscosity (25°C)	: 0,52 mPa.S
* Explosive properties	: Not applicable.
Oxidizing properties	: Not applicable.

9.2. Other information

* Surface tension (20°C)	: 25 mN/m
Specific leading	: 3,6*10E5 pS/m
Thermal expansion coefficient	: 0,00129 v/v °C
% Volatiles (by weight)	: 100

10. Stability and reactivity

10.1. Reactivity

* See below.

10.2. Chemical stability

Stability : Stable at normal circumstances.

10.3. Possibility of hazardous reactions

* Hazardous reactions : Possible formation of peroxides.

10.4. Conditions to avoid

Conditions to avoid : High temperatures .

10.5. Incompatible materials

Materials to avoid : Oxidizing agents .

10.6. Hazardous decomposition products

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

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity

- Inhalation : May cause irritation of respiratory tract.
  High concentrations may produce central nervous system depression and loss of consciousness (diminuation of consciousness).
  Symptoms include: Cough , Headache , Drowsiness .
  • Butanone : LC50 (Rat, inhalation, 4 h) : 20 mg/l
- Skin contact : May be irritating for the skin. Product is being absorbed through the skin.
  Symptoms include: Redness .
  • Butanone : LD50 (Rabbit, dermal) : > 5000 mg/kg
- Eye contact : Irritating to eyes.
  Symptoms include: Redness , Pain .
- Ingestion : Symptoms include: Abdominal cramps , See "Inhalation" .
  • Butanone : LD50 (Rat, oral) : > 2500 mg/kg

Chronic toxicity : Repeated exposure may cause skin dryness or cracking.

* Sensibilization : Not sensitive .

* Carcinogenicity : Not carcinogenic .

* Mutagenicity : Not mutagenic .

* Reproductive toxicity : Possible risk of harm to the unborn child.

12. Ecological information

12.1. Toxicity

Ecotoxicity : • Butanone : EC50 (Daphnia magna, 48 h) : > 5000 mg/l
• Butanone : LC50 (Fish, 96 h) : > 2500 mg/l (Pimephales promelas)

12.2. Persistence and degradability

Persistence and degradability : • Butanone : Persistence and degradability : Easily

12.3. Bioaccumulative potential

Bioaccumulation : • Butanone : Bioaccumulation : No

12. Ecological information (continued)

12.4. Mobility in soil

Mobility : • Butanone : Mobility : Good soluble in water

12.5. Results of PBT and vPvB assessment

* Evaluation : • Butanone : PBT/vPvB : No

12.6. Other adverse effects

This product is classified as a Volatile Organic Component according to Directive 1999/13/EC.

WGK class (DE) : 1 (Weak water pollutant)

Water damaging (NL) : 11

Decontamination exertion (NL) : B

13. Disposal considerations

13.1. Waste treatment methods

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

* European list of waste products : XXXXXX - European waste

14. Transport information (continued)

Danger number : 33
Hazard Label(s) : 3
EmS-N° : F-E, S-D

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

* Type ship : 3
* Pollution category : Z

15. Regulatory information

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

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

NFPA n° : 1-3-0

* Relevant EU Rule(s) : Directive 92/85/EEC of the Council of 19 October 1992 on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding
Directive 96/82/EC of the Council of 9 December 1996 on the control of major-accident hazards involving dangerous substances
Directive 98/24/EC of the Council of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work
Directive 1999/13/EC of the Council of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations
Directive 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC
Decision 2001/118/EC of the Commission of 16 January 2001 amending Decision 2000/532/EC as regards the list of wastes
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (Reach)

15.2. Chemical Safety Assessment

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

16. Other information

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

* Has changed compared to previous revision.

16. Other information (continued)

	Changes	: General revision .
*	Sources of used key data	: The information contained herein is based on the present state of our knowledge (Producer(s) , Chemical cards , ...). See also on the webaddress: http://apps.echa.europa.eu/registered/registered-sub.aspx#search
	R-phrases	: R11 - Highly flammable. R36 - Irritating to eyes. R66 - Repeated exposure may cause skin dryness or cracking. R67 - Vapours may cause drowsiness and dizziness.
*	(EU)H-statements	: H225 - Highly flammable liquid and vapour. H319 - Causes serious eye irritation. H336 - May cause drowsiness or dizziness. EUH066 - Repeated exposure may cause skin dryness or cracking.
*	List of abbrevations and acronyms	: ADN (Accord européen relatif au transport international des marchandises Dangereuses par voie de Navigation interieur) : European agreement concerning the international carriage of dangerous goods by inland waterways ADR (Accord européen relatif au transport international des marchandises Dangereuses par Route) : European agreement concerning the international carriage of dangerous goods by road CO : Carbon monoxide DNEL (Derived No Effect Level) : an estimated safe exposure level EmS (Emergency Schedule) : the first code refers to the relevant fire schedule and the second code refers to the relevant spillage schedule IMDG (International Maritime Dangerous Goods code) NFPA (National Fire Protection Association) or fire diamant PNEC (Predicted No Effect Concentration) : concentration below which exposure to a substance is not expected to cause adverse effects REACH : Registration, Evaluation, Authorisation and restriction of Chemicals WGK (Wassergefahrdungsklasse) : a German classification of substances that indicate the environmental hazard for surface water

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

End of document

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	1, 4	NA	ES600
2	Use as an intermediate	3	NA	NA	1, 2, 3, 4, 8a, 8b, 15	6a	NA	ES626
3	Distribution of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	2	NA	ES628
4	Formulation & (re)packing of substances and mixtures	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES630
5	Polymer processing	3	10	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 13, 14, 21	4, 7	NA	ES222
6	Uses in coatings	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	4	NA	ES632
7	Uses in coatings	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19	8a, 8d	NA	ES229
8	Uses in coatings	21	NA	1, 4, 8, 9a, 9b, 15, 18, 23, 24, 31, 34	NA	8a, 8d	NA	ES363
9	Use in Cleaning Agents	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 10, 13	4	NA	ES636
10	Use in Cleaning Agents	22	NA	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	8a, 8b, 8d	NA	ES319
11	Use in Cleaning Agents	21	NA	9a, 9b, 24, 35	NA	8a, 8d	NA	ES392
12	Use as binders and release agents	3	NA	NA	1, 2, 3, 4, 6, 7, 8b, 10, 13, 14	4, 5	NA	ES185
13	Use as binders and release agents	22	NA	NA	1, 2, 3, 4, 6, 8b, 10, 11, 14	8a, 8d	NA	ES324
14	Use in agrochemicals	22	NA	NA	1, 2, 4, 8a, 8b, 11, 13	8a, 8d	NA	ES322
15	Use in agrochemicals	21	NA	12, 27	NA	8a, 8d	NA	ES481

16	Use as a fuel	3	NA	NA	1, 2, 3, 8a, 8b, 16	7	NA	ES189
17	Use as a fuel	22	NA	NA	1, 2, 3, 8a, 8b, 16	8b, 8e, 9a, 9b	NA	ES326
18	Use as a fuel	21	NA	13	NA	8b	NA	ES485
19	Use as lubricants	3	NA	NA	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17, 18	4, 7	NA	ES177
20	Use as lubricants	21	NA	1, 24, 31	NA	8a, 8d, 9a, 9b	NA	ES471
21	Use as Functional Fluids	21	NA	16, 17	NA	9a, 9b	NA	ES489
22	Use in laboratories	3	NA	NA	10, 15	2, 4	NA	ES217
23	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES329
24	Use in metal working fluids / rolling oils	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 17	4	NA	ES183
25	Use in de-icing and anti-icing applications	22	NA	NA	8b, 10, 11	8d	NA	ES357
26	Use in road and construction applications	22	NA	NA	8a, 8b, 9, 10, 11, 13	8d, 8f	NA	ES353
27	Use as water treatment chemicals	3	NA	NA	1, 2, 3, 4, 8a, 8b, 13	3	NA	ES226
28	Use as water treatment chemicals	22	NA	NA	1, 2, 3, 4, 8a, 8b, 13	8f	NA	ES331
29	Explosives manufacture & use	22	NA	NA	1, 2, 3, 5, 8a, 8b	8d, 8e	NA	ES355

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 substance or use as an intermediate, process chemical or extracting agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
2.1 Contributing scenario controlling environmental exposure for: ERC1		
No exposure assessment presented for the environment.		
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	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 2: Use as an intermediate		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
Activity	Use as an intermediate (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
No exposure assessment presented for the environment.		
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	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
3. Exposure estimation and reference to its source		

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 3: Distribution of substance		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	
Activity	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1)
	General exposures (closed systems)	Clear transfer lines prior to de-coupling.(PROC4)
	Equipment cleaning and maintenance	Drain down system prior to equipment opening or maintenance.(PROC8a)
	Bulk transfers	Handle substance within a closed

	(closed systems)	system.(PROC8b)
	Drum and small package filling	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 4: 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	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	
Activity	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15		
Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC2, PROC3)
	Storage	Store substance within a closed system. Transfer via enclosed lines. Locate bulk storage outdoors.(PROC1, PROC2)
	Provide extraction ventilation at points where emissions occur.(PROC5, PROC14)	
	Transfer from/pouring	Use drum pumps or carefully pour from

	from containers Manual	container.(PROC8a, PROC8b)
	Drum/batch transfers	Drain down and flush system prior to equipment opening or maintenance.(PROC8a)
	Drum and small package filling	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Wear a respirator conforming to EN140 with Type A filter or better.(PROC5, PROC14)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20℃ above ambient temperature).(PROC6)	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC2)
	Additive premixing	Ensure material transfers are under containment or extract ventilation.(PROC3, PROC4, PROC5)
	Additive premixing	Avoid carrying out operation for more than 4 hours.(PROC5)
	Calendering (including Banburys)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC6)
	Equipment maintenance	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC8a)
	Bulk transfers	Handle substance within a closed system. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC9)
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC13, PROC14, PROC21)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 6: Uses in coatings	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Activity	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for: ERC4

No exposure assessment presented for the environment.

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

Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Ensure material transfers are under containment or extract ventilation.(PROC2, PROC3)	
	Provide extraction ventilation at points where emissions occur.(PROC4, PROC5, PROC13, PROC14, PROC15)	
	Spraying (automatic/robotic)	Carry out in a vented booth provided with laminar airflow.(PROC7)
	Spraying/fogging by manual application	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7)
	Clear transfer lines prior to de-coupling.(PROC8a, PROC8b)	
	Material transfers Drum/batch transfers Transfer from/pouring from containers	Provide extract ventilation to material transfer points and other openings.(PROC9)
	Roller, spreader, flow application	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC10)
	Production of preparations or articles by tabletting, compression, extrusion, pelettisation	Avoid manual contact with wet work pieces.(PROC13)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Spraying/fogging by manual application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC7)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 7: Uses in coatings		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation) and equipment cleaning, maintenance and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Avoid carrying out operation for more than 4 hours.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1, PROC2)

Filling / preparation of equipment from drums or containers	
Filling / preparation of equipment from drums or containers	Ensure material transfers are under containment or extract ventilation.(PROC2)
Preparation of material for application	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC3)
Film formation - air drying Indoor	Provide extraction ventilation at points where emissions occur. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC4)
Preparation of material for application Indoor	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC5)
Drum/batch transfers	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC8a)
Material transfers Drum/batch transfers	Provide extract ventilation to material transfer points and other openings.(PROC8b)
Roller, spreader, flow application Indoor	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC10)
Spraying/fogging by manual application Indoor	Carry out in a vented booth or extracted enclosure.(PROC11)
Dipping, immersion and pouring Indoor	Provide extraction ventilation at points where emissions occur. Avoid manual contact with wet work pieces.(PROC13)
Dipping, immersion and pouring Outdoor.	Ensure operation is undertaken outdoors. Avoid manual contact with wet work pieces.(PROC13)
Laboratory activities	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC15)
Hand application - finger paints, pastels, Adhesives Indoor	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC19)
Hand application - finger paints, pastels, Adhesives Outdoor.	Ensure operation is undertaken outdoors.(PROC19)

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Film formation - air drying Outdoor.	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Preparation of material for application Indoor	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC5)
	Drum/batch transfers	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
	Spraying/fogging by manual application Outdoor.	Avoid carrying out operation for more than 4 hours.(PROC11)
	Preparation of material for application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC5, PROC10, PROC11, PROC19)
	Spraying/fogging by manual application Hand application - finger paints, pastels, Adhesives Outdoor.	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11, PROC19)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 8: Uses in coatings		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC4: Anti-freeze and de-icing products PC8: Biocidal products PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC15: Non-metal-surface treatment products PC18: Ink and toners PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC31: Polishes and wax blends PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Amount used	Amount used per event	9 g
Frequency and duration of use	Exposure duration per day	4 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contactcheso useE

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	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	6,390 kg
Frequency and duration of use	Exposure duration per day	6 h
	Frequency of use	1 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.5 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 30%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Amount used	Amount used per event	85,05 g
Frequency and duration of use	Exposure duration per day	4 h
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.6 Contributing scenario controlling consumer exposure for: PC1: Sealants		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	75 g
Frequency and duration of use	Exposure duration per day	1 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.7 Contributing scenario controlling consumer exposure for: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Exposure duration per day	0,02 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.8 Contributing scenario controlling consumer exposure for: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	2 kg
Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.9 Contributing scenario controlling consumer exposure for: PC8: Cleaners, liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product 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	Exposure duration per day	0,33 h
	Frequency of use	128 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.10 Contributing scenario controlling consumer exposure for: PC8: Cleaners, trigger sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	0,17 h
	Frequency of use	128 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.11 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,744 kg
Frequency and duration of use	Exposure duration per day	2,2 h
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.12 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,215 kg
Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	2 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.13 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,491 kg
Frequency and duration of use	Exposure duration per day	2 h
	Frequency of use	3 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.15 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	4 h
	Frequency of use	12 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.16 Contributing scenario controlling consumer exposure for: PC9b: Plasters and floor equalizers		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	13,8 kg
Frequency and duration of use	Exposure duration per day	2 h
	Frequency of use	12 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.17 Contributing scenario controlling consumer exposure for: PC15: Solvent rich, high solid, water borne paint		
Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,744 kg
Frequency and duration of use	Exposure duration per day	2,2 h
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.18 Contributing scenario controlling consumer exposure for: PC15: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,215 kg
Frequency and duration of use	Exposure duration per day	0,33 h
	Frequency of use	2 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.19 Contributing scenario controlling consumer exposure for: PC15: Removers (paint-, glue-, wall paper-, sealant remover)		

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,491 kg
Frequency and duration of use	Exposure duration per day	2 h
	Frequency of use	3 days/year

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Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	1,23 h
	Frequency of use	29 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	0,33 h
	Frequency of use	8 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.23 Contributing scenario controlling consumer exposure for: PC24: Liquids

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	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	4 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.24 Contributing scenario controlling consumer exposure for: PC24: Pastes

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	6 h
	Frequency of use	10 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.25 Contributing scenario controlling consumer exposure for: PC24: Sprays

Product characteristics	Concentration of the	Concentration of substance in product : 0% - 50%

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration per day	0,17 h
	Frequency of use	6 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.26 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	1,23 h
	Frequency of use	29 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.27 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture,		

shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per day	0,33 h
	Frequency of use	8 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.28 Contributing scenario controlling consumer exposure for: PC34		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,115 kg
Frequency and duration of use	Exposure duration per day	1 h
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

1. Short title of Exposure Scenario 9: Use in Cleaning Agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
Activity	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Filling / preparation of equipment from drums or containers	Ensure material transfers are under containment or extract ventilation.(PROC8b)
	Provide extraction ventilation at points where emissions occur.(PROC4, PROC13)	
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC7, PROC10)	
Conditions and measures related	Use suitable eye protection.	

to personal protection, hygiene and health evaluation	Avoid direct eye contact with product, also via contamination on hands.
	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC2)
	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC3, PROC7, PROC10)
	Wear a respirator conforming to EN140 with Type A filter or better.(PROC7, PROC10)

3. Exposure estimation and reference to its source

1. Short title of Exposure Scenario 10: Use in Cleaning Agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Surfaces cleaning Manual	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC10)
	Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC4)

	products)	
	Cleaning of medical devices	Provide extraction ventilation at points where emissions occur.(PROC4)
	Filling / preparation of equipment from drums or containers	Ensure operation is undertaken outdoors.(PROC8a)
	Filling / preparation of equipment from drums or containers	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC8b)
	Cleaning with low-pressure washers Rolling, Brushing	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC10)
	Surfaces cleaning Manual	Ensure doors and windows are opened.(PROC10)
	Ad hoc manual application via trigger sprays, dipping, etc	Provide extraction ventilation at points where emissions occur.(PROC10)
	Cleaning with high pressure washers Spraying Indoor	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.(PROC11)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Surfaces cleaning Manual	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
	Automated process with (semi) closed systems	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC2, PROC3)
	Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products)	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Application of cleaning products in closed systems	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC4)
	Cleaning of medical devices	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A

	filter or better.(PROC4)
Filling / preparation of equipment from drums or containers	Wear a respirator conforming to EN140 with Type A filter or better.(PROC8a)
Filling / preparation of equipment from drums or containers	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC8b)
Surfaces cleaning Manual	Avoid carrying out operation for more than 1 hour. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
Ad hoc manual application via trigger sprays, dipping, etc	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC10)
Cleaning with high pressure washers Spraying Outdoor.	Avoid carrying out operation for more than 4 hours. or Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 11: Use in Cleaning Agents		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based products)	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,744 kg
Frequency and duration of use	Exposure duration per event	2 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.3 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%

	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,215 kg
Frequency and duration of use	Exposure duration per event	0,33 h
	Frequency of use	2 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.4 Contributing scenario controlling consumer exposure for: PC9a: Removers (paint-, glue-, wall paper-, sealant-remover)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	0,491 kg
Frequency and duration of use	Exposure duration per event	2 h
	Frequency of use	3 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.5 Contributing scenario controlling consumer exposure for: PC9b		

Methyl ethyl ketone

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Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
	Physical Form (at time of use)	liquid

2.7 Contributing scenario controlling consumer exposure for: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product 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	Exposure duration per event	2,2 h
	Frequency of use	10 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	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	Concentration of substance in product : 0% - 20%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	73 g
Frequency and duration of use	Exposure duration per event	0,17 min
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal	No specific risk management measure identified beyond those operational conditions stated.	

protection and hygiene)		
2.9 Contributing scenario controlling consumer exposure for: PC35: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	0,33 min
	Frequency of use	128 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.10 Contributing scenario controlling consumer exposure for: PC35: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	0,17 min
	Frequency of use	128 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6

	Covers use under typical household ventilation.
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

1. Short title of Exposure Scenario 12: Use as binders and release agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC7: Industrial spraying PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix	
Activity	Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing) and handling of waste.	
2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC10, PROC13, PROC14		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20℃ above ambient temperature).(PROC6)	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Material transfers	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Transfer via enclosed lines.(PROC1, PROC2,

		PROC3)
	Mixing operations (closed systems)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Handle substance within a closed system.(PROC3)
	Casting operations	Provide extraction ventilation at points where emissions occur.(PROC6)
	Spraying (automatic/robotic)	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
	Spraying/fogging by manual application	Carry out in a vented booth or extracted enclosure.(PROC7)
	Drum/batch transfers	Transfer materials directly to mixing vessels.(PROC8b)
	Provide extraction ventilation at points where emissions occur.(PROC10, PROC14)	
Conditions and measures related to personal protection, hygiene and health evaluation	Casting operations	Wear a respirator conforming to EN140 with Type A filter or better.(PROC6)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 13: Use as binders and release agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC8b, PROC10, PROC11, PROC14		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20℃ above ambient temperature).(PROC6)	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Transfer via enclosed lines.(PROC1, PROC2, PROC3)	
	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC3, PROC10, PROC14)	
	Mixing operations (open systems)	Handle substance within a closed system.(PROC4)

Casting operations	Provide extraction ventilation at points where emissions occur.(PROC6)
Use drum pumps.(PROC8b)	
Minimise exposure by extracted full enclosure for the operation or equipment.(PROC11)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 14: Use in agrochemicals		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1, PROC2)
	Mixing operations (open systems) Transfer from/pouring from containers Ad hoc manual application via trigger sprays, dipping, etc	Ensure operation is undertaken outdoors.(PROC4, PROC8b, PROC13)
	Disposal of wastes	Ensure operation is undertaken outdoors.(PROC8a)
	Spraying (automatic/robotic)	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.(PROC11)

Organisational measures to prevent /limit releases, dispersion and exposure	Disposal of wastes	Avoid carrying out operation for more than 1 hour.(PROC8a)
	Equipment cleaning and maintenance	Avoid carrying out operation for more than 1 hour.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Disposal of wastes	Wear suitable gloves tested to EN374.(PROC8a)
	Equipment cleaning and maintenance	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC8a)
	Spraying/fogging by machine application	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Ad hoc manual application via trigger sprays, dipping, etc	Wear suitable gloves tested to EN374. Wear a respirator conforming to EN140 with Type A filter or better.(PROC13)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 15: Use in agrochemicals		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC12: Lawn and garden preparations, including fertilizers (- Fertilizers) PC27: Plant protection products	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Covers the consumer use of agrochemicals in liquid and solid forms.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling consumer exposure for: PC12, PC27		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 5%
	Physical Form (at time of use)	liquid
Amount used	Amount used per event	50 g
Frequency and duration of use	Exposure duration per event	0,5 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 857,5 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation., Covers use at ambient temperatures.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using at a product concentration greater than 2.5%(PC27)
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented 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

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

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Methyl ethyl ketone

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3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 17: Use as a fuel	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems
Activity	Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

2.1 Contributing scenario controlling environmental exposure for: ERC8b, ERC8e, ERC9a, ERC9b

No exposure assessment presented for the environment.

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

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

	Drum/batch transfers	Use drum pumps or carefully pour from container.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 18: Use as a fuel		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC13: Fuels	
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems	
Activity	Covers consumer uses in liquid fuels.	
2.1 Contributing scenario controlling environmental exposure for: ERC8b		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling consumer exposure for: PC13: Liquid: Automotive Refuelling, PC13: Liquid: Scooter Refuelling		
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
Amount used	Amount used per event	37,5 kg (PC13)
	Amount used per event	3,75 kg (PC13)
Frequency and duration of use	Exposure duration per event	0,05 h(PC13)
	Exposure duration per event	0,03 h(PC13)
	Frequency of use	52 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm^2
Other given operational conditions affecting consumers exposure	Room size	100 m3
	Ventilation rate per hour	0,6
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.3 Contributing scenario controlling consumer exposure for: PC13: Liquid: Garden Equipment - Use, PC13: Liquid: Garden Equipment - Refueling		
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

Amount used	Amount used per event	0,750 kg
Frequency and duration of use	Exposure duration per event	2 h(PC13)
	Exposure duration per event	0,03 h(PC13)
	Frequency of use	26 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 420 cm²
Other given operational conditions affecting consumers exposure	Room size	100 m3(PC13)
	Ventilation rate per hour	0,6(PC13)
	Covers use under typical household ventilation.(PC13)	
	Room size	34 m3(PC13)
	Ventilation rate per hour	1,5(PC13)
	Covers use in a one car garage (34 m3) under typical ventilation.(PC13)	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.4 Contributing scenario controlling consumer exposure for: PC13: Liquid: Lamp oil		
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
Amount used	Amount used per event	0,100 kg
Frequency and duration of use	Exposure duration per event	0,01 h
	Frequency of use	1 Times per day
	Frequency of use	52 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 210 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
3. Exposure estimation and reference to its source		

Environment

No exposure assessment presented 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

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

1. Short title of Exposure Scenario 19: 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	
Activity	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.	
2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC7		
No exposure assessment presented for the environment.		
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	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20℃ above ambient temperature).(PROC8b)	
Technical conditions and measures to control dispersion	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Spraying	Minimise exposure by partial enclosure of the

from source towards the worker		operation or equipment and provide extract ventilation at openings.(PROC7)
	Maintenance of small items	Avoid carrying out operation for more than 4 hours.(PROC8a)
	Filling / preparation of equipment from drums or containers	Transfer via enclosed lines. Use drum pumps or carefully pour from container.(PROC8a, PROC8b)
	Maintenance (of larger plant items) and machine set up	Clear lines prior to de-coupling. Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.(PROC8b)
	Remanufacture of reject articles	Avoid carrying out operation for more than 4 hours.(PROC9)
	Ensure material transfers are under containment or extract ventilation.(PROC9)	
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)	
	Restrict area of openings to equipment.(PROC13, PROC17, PROC18)	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
	Maintenance (of larger plant items) and machine set up	Wear suitable gloves tested to EN374.(PROC8b)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 20: Use as lubricants		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC1: Adhesives, sealants PC24: Lubricants, greases, release products PC31: Polishes and wax blends	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
Activity	Covers the consumer use of formulated lubricants in closed and open systems including transfer operations, application, operation of engines and similar articles, equipment maintenance and disposal of waste oil.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC9a, ERC9b		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling consumer exposure for: PC1: Glues, hobby use		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	4 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
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	Concentration of substance in product : 0% - 30%

	Mixture/Article	
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	6,390 kg
Frequency and duration of use	Exposure duration per event	6 h
	Frequency of use	1 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 110 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.4 Contributing scenario controlling consumer exposure for: PC1: Glue from spray		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	4 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.5 Contributing scenario controlling consumer exposure for: PC1: Sealants		

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 Pa
Amount used	Amount used per event	75 g
Frequency and duration of use	Exposure duration per event	1 h
	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 35,73 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	Avoid using at a product concentration greater than ....
2.6 Contributing scenario controlling consumer exposure for: PC24: Liquids		
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	> 10 Pa
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Exposure duration per event	0,17 h
	Frequency of use	4 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

2.7 Contributing scenario controlling consumer exposure for: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	6 h
	Frequency of use	10 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	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	Concentration of substance in product : 0% - 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	Exposure duration per event	0,17 h
	Frequency of use	6 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 428,75 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal	No specific risk management measure identified beyond those operational conditions stated.	

protection and hygiene)		
2.9 Contributing scenario controlling consumer exposure for: PC31: Polishes, wax / cream (floor, furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	1,23 h
	Frequency of use	29 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6
	Covers use under typical household ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	
2.10 Contributing scenario controlling consumer exposure for: PC31: Polishes, spray (furniture, shoes)		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 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	Exposure duration per event	0,33 h
	Frequency of use	8 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 430 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Ventilation rate per hour	0,6

	Covers use under typical household ventilation.
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

1. Short title of Exposure Scenario 21: Use as Functional Fluids		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC16: Heat transfer fluids PC17: Hydraulic fluids	
Environmental Release Categories	ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems	
Activity	Use of sealed items containing functional fluids e.g. transfer oils, hydraulic fluids, refrigerants.	
2.1 Contributing scenario controlling environmental exposure for: ERC9a, ERC9b		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling consumer exposure for: PC16, PC17		
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
Amount used	Amount used per event	2,2 kg
Frequency and duration of use	Exposure duration per event	0,17 h
	Frequency of use	1 Times per day
	Frequency of use	4 days/year
Human factors not influenced by risk management	Exposed skin areas	Covers skin contact area up to 468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Ventilation rate per hour	1,5
	Covers use at ambient temperatures., Covers use in a one car garage (34 m3) under typical ventilation.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source
Environment
No exposure assessment presented 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

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

1. Short title of Exposure Scenario 22: 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	
Activity	Use of the substance within laboratory settings, including material transfers and equipment cleaning..	
2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4		
No exposure assessment presented for the environment.		
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	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure the ventilation system is regularly maintained and tested.	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	
3. Exposure estimation and reference to its source		
Environment		
No exposure assessment presented 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		

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 23: Use in laboratories		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
Activity	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
No exposure assessment presented for the environment.		
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	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	cleaning	Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC10)
Organisational measures to prevent /limit releases, dispersion and exposure	Ensure the ventilation system is regularly maintained and tested.	
	cleaning	Avoid carrying out operation for more than 1 hour.(PROC10)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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1. Short title of Exposure Scenario 24: 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 PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis where opportunity for exposure arises PROC8b: Transfer of substance or preparation (charging and discharging) 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 PROC19: Manual activities involving hand contact PROCa:

	Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
	Bulk transfers	Provide enhanced general ventilation by mechanical means. or Ensure operation is undertaken outdoors. Clear transfer lines prior to de-coupling.(PROC8b)
	Process sampling	Use dedicated equipment.(PROC8b)
	Provide enhanced general ventilation by mechanical means.(PROC10, PROC13)	
	Metal machining operations	Provide extraction ventilation at points where emissions occur. Restrict area of openings to equipment.(PROC17)
	Semi-automated metal rolling/forming	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC17)
Organisational measures to prevent /limit releases, dispersion and exposure	Bulk transfers	Avoid carrying out operation for more than 1 hour.(PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection. Avoid direct eye contact with product, also via contamination on hands.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 25: Use in de-icing and anti-icing applications		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	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	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Activity	Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying.	
2.1 Contributing scenario controlling environmental exposure for: ERC8d		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC8b, PROC10, PROC11		
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	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Application duration	< 4 h(PROC10)
	Frequency of use	hours/day(PROC10)
	Application duration	< 1 h(PROC8b, PROC11)
	Frequency of use	hours/day(PROC8b, PROC11)
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20℃ above ambient temperature).(PROC11)	
	Limit the substance content in the mixture to 1 %.(PROC10)	
	Limit the substance content in the mixture to 5 %.(PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	Ensure operation is undertaken outdoors.(PROC8b, PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374.(PROC8b, PROC10, PROC11)	
3. Exposure estimation and reference to its source		

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 26: Use in road and construction applications		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities 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	
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
Activity	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC8d, ERC8f		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Equipment cleaning and maintenance	Ensure operation is undertaken outdoors. Retain drain downs in sealed storage pending disposal or for subsequent recycle.(PROC8a)
	Drum/batch transfers Dedicated facility	Use dedicated equipment. Clear transfer lines prior to de-coupling.(PROC8b)
	Ensure operation is undertaken outdoors.(PROC10, PROC11, PROC13)	
Organisational measures to prevent /limit releases, dispersion and exposure	Equipment cleaning and maintenance	Avoid carrying out operation for more than 1 hour.(PROC8a)
Conditions and measures related to personal protection, hygiene and health evaluation	Drum/batch transfers Non-dedicated facility	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC8a)
	Wear suitable gloves tested to EN374.(PROC8a, PROC13)	

Drum/batch transfers Dedicated facility	Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC8b)
Wear suitable respiratory protection (conforming to EN140 with Type A filter or better) and gloves (type EN374) if regular skin contact likely.(PROC10, PROC11, PROC13)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 27: Use as water treatment chemicals		
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 PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC3: Formulation in materials	
Activity	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems	
2.1 Contributing scenario controlling environmental exposure for: ERC3		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1)
	General exposures (open systems)	Transfer via enclosed lines.(PROC4)
	Equipment maintenance	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a)
	Drum/batch transfers	Use drum pumps.(PROC8b)
	Pouring from small containers	Provide extraction ventilation at points where emissions occur.(PROC13)
3. Exposure estimation and reference to its source		

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 28: Use as water treatment chemicals		
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 PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
Activity	Covers the use of the substance for the treatment of water in open and closed systems.	
2.1 Contributing scenario controlling environmental exposure for: ERC8f		
No exposure assessment presented for the environment.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	> 10 kPa
	Assumes use at not more than 20℃ above ambient temp erature.	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Technical conditions and measures to control dispersion from source towards the worker	Storage	Store substance within a closed system.(PROC1)
	General exposures (open systems)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) Transfer via enclosed lines.(PROC4)
	Equipment maintenance	Drain or remove substance from equipment prior to break-in or maintenance. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)(PROC8a)
	Drum/batch transfers	Use drum pumps. Avoid spillage when withdrawing pump.(PROC8b)
	Pouring from small containers	Provide extraction ventilation at points where emissions occur.(PROC13)

Organisational measures to prevent /limit releases, dispersion and exposure	Pouring from small containers	Avoid carrying out operation for more than 1 hour.(PROC13)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 29: Explosives manufacture & use

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) 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

Environment

No exposure assessment presented 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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

BRENNTAG N.V.
BRENNTAG Nederland B.V.

BRENNTAG N.V. • Nijverheidslaan 38 • BE-8540 DEERLIJK
Tel. +32(0)56/77.69.44 • Fax +32(0)56/77.57.11 • info@brenntag.be • www.brenntag.be

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