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

ACETIC ACID 80% VOL.

Version 3.0 Print Date 26.03.2026

Revision date / valid from 04.11.2025

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

1.1. Product identifier

Trade name	:	ACETIC ACID 80% VOL.
Substance name	:	acetic acid...%
Index-No.	:	607-002-00-6
CAS-No.	:	64-19-7
EC-No.	:	200-580-7
EU REACH-Reg. No.	:	01-2119475328-30-xxxx
UFI	:	CHRA-P06R-S00G-X3QY
UFI code notified in	:	Belgium, Germany, Denmark, Estonia, Spain, France, Croatia, Ireland, Iceland, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Poland, Portugal, Sweden

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

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

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag N.V. Nijverheidslaan 38 BE 8540 Deerlijk
Telephone	:	+32 (0)56 77 6944
Telefax	:	+32 (0)56 77 5711
E-mail address	:	info@brenntag.be
Responsible/issuing person	:	Master Data Administration
Company	:	Brenntag Nederland B.V. Donker Duyvisweg 44 NL 3316 BM Dordrecht
Telephone	:	+31 (0)78 65 44 944
Telefax	:	+31 (0)78 65 44 919
E-mail address	:	info@brenntag.nl

Responsible/issuing person	:	Master Data Administration

1.4. Emergency telephone number

Emergency telephone number	:	Belgium: Antipoison Center - Brussels TEL: +32(0)70 245 245 Netherland: National Poisoning Information Center - Bilthoven TEL: +31(0) 88 755 8000 (Only for the purpose of informing medical personnel in cases of acute intoxications)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Skin corrosion	Category 1B	---	H314
Serious eye damage	Category 1	---	H318

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

Most important adverse effects

Human Health	:	See section 11 for toxicological information.
Physical and chemical hazards	:	See section 9/10 for physicochemical information.
Potential environmental effects	:	See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word	:	Danger	
Hazard statements	:	H314	Causes severe skin burns and eye damage.
Precautionary statements			
Prevention	:	P260	Do not breathe mist/ vapours/ spray.

		P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response	:	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Hazardous components which must be listed on the label:

- acetic acid...%

2.3. Other hazards

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

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
acetic acid...%			
Index-No. : 607-002-00-6 CAS-No. : 64-19-7 EC-No. : 200-580-7 EU REACH-Reg. No. : 01-2119475328-30-xxxx	> 70 - <= 75	Flam. Liq.3 Skin Corr.1A Eye Dam.1 --- specific concentration limit Skin Corr. 1A; H314 >= 90 % Skin Corr. 1B; H314 25 - < 90 % Skin Irrit. 2; H315 10 - < 25 % Eye Irrit. 2; H319	H226 H314 H318

	10 - < 25 % Note B

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.

If inhaled : In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

In case of skin contact : Wash off immediately with soap and plenty of water. Call a physician immediately.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.

If swallowed : Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician immediately.

Protection of First Aid Responders : First Aid responders should pay attention to self-protection and use the recommended protective clothing.

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

Symptoms : See Section 11 for more detailed information on health effects and symptoms.;

Effects : Extremely corrosive and destructive to tissue. If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach. See Section 11 for more detailed information on health effects and symptoms.

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

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Strong heating may produce combustible vapours which can form explosive mixture with air.
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO2), The formation of caustic fumes is possible.

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)
Specific extinguishing methods	:	Control smoke with water spray.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

6.3. Methods and materials for containment and cleaning up

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

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Use respirator with appropriate filter if vapours or aerosol are released. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection. Possible formation of ignitable mixtures in air if heated above flash point and/or if sprayed (atomised).
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Keep in a well-ventilated place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Materials to avoid: Oxidizing agents
Suitable packaging materials	:	Stainless steel, Polyethylene, Polypropylene
Unsuitable packaging materials	:	, Iron, copper, Brass, Zinc

7.3. Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	**acetic acid...%**	**CAS-No. 64-19-7**
Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		

DNEL
Workers, Long-term - local effects, Inhalation : 25 mg/m3

DNEL
Workers, Acute - local effects, Inhalation : 25 mg/m3

DNEL

General population, Long-term - local effects, Inhalation	:	25 mg/m3

Predicted No Effect Concentration (PNEC)

Fresh water	:	3,058 mg/l
Marine water	:	0,306 mg/l
Freshwater intermittent releases	:	30,58 mg/l
Sewage treatment plant (STP)	:	85 mg/l
Fresh water sediment	:	11,36 mg/kg d.w.
Marine sediment	:	1,136 mg/kg d.w.
Soil	:	0,47 mg/kg d.w.

Other Occupational Exposure Limit Values

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Time Weighted Average (TWA):
10 ppm, 25 mg/m3
Indicative

Belgium. OELs. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1, as amended, Time Weighted Average (TWA):
10 ppm, 25 mg/m3

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Short Term Exposure Limit (STEL):
20 ppm, 50 mg/m3
Indicative

Belgium. OELs. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1, as amended, Short Term Exposure Limit (STEL):
15 ppm, 38 mg/m3, (15 minutes)

Netherlands. OELs (binding) per Annex XIII of Working Conditions Regulation, as amended, Time Weighted Average (TWA):
25 mg/m3

Netherlands. OELs (binding) per Annex XIII of Working Conditions Regulation, as amended, Short Term Exposure Limit (STEL):
50 mg/m3, (15 minutes)

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Time Weighted Average (TWA):
10 ppm, 25 mg/m3

Indicative

EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended, Short Term Exposure Limit (STEL): 20 ppm, 50 mg/m3
Indicative

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment

Respiratory protection

Advice	:	In case of brief exposure or low pollution use breathing filter apparatus. Recommended Filter type:A Recommended Filter type:E In case of intensive or longer exposure use self-contained breathing apparatus. Equipment should conform to EN 14387

Hand protection

Advice	:	Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	Natural Rubber
Break through time	:	>= 8 h
Glove thickness	:	0,5 mm

Material	:	polychloroprene
Break through time	:	>= 8 h
Glove thickness	:	0,5 mm

Material	:	butyl-rubber
Break through time	:	>= 8 h
Glove thickness	:	0,5 mm

Material	:	Fluorinated rubber
Break through time	:	>= 8 h
Glove thickness	:	0,4 mm

Material	:	Polyvinylchloride
Break through time	:	>= 8 h
Glove thickness	:	0,5 mm

Eye protection

Advice	:	Tightly fitting safety goggles (EN166) Face-shield

Skin and body protection

Protecting Clothes	:	Impervious clothing Chemical resistant apron

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	:	liquid
Physical state	:	liquid
Colour	:	colourless
Odour	:	vinegar-like
Odour Threshold	:	No data available
Freezing point/range	:	> -27 - -7 °C
Boiling point/boiling range	:	102 - 118 °C
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	19,9 %(V) (referring to pure substance)
Lower explosion limit / Lower flammability limit	:	4,0 %(V) (referring to pure substance)
Flash point	:	No data available
Auto-ignition temperature	:	463 °C
Decomposition temperature	:	No data available
Self-Accelerating decomposition temperature (SADT)	:	No data available
pH	:	1,5 - 2 Concentration: 100 % Method: (calculated)
Viscosity		

Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Solubility(ies)		
Water solubility	:	soluble
Solubility in other solvents	:	No data available
Dissolution Rate	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: -0,17 (25 °C) pH: 7
Dispersion Stability	:	No data available
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	1,067 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	No data available
Particle characteristics		
Particle size	:	Not applicable

9.2 Other information

Explosives	:	Product is not explosive.
Oxidizing properties	:	not oxidising
Molecular weight	:	60,05 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if used as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : May be corrosive to metals.

10.4. Conditions to avoid

Conditions to avoid : Heat

10.5. Incompatible materials

Materials to avoid : Bases, Strong oxidizing agents, Alcohols, Nitric acid

10.6. Hazardous decomposition products

Hazardous decomposition products : Under fire conditions: Carbon monoxide, Carbon dioxide (CO2)

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Data for the product		
Acute toxicity		
Oral		
		Not classified based on the calculation method according to CLP regulation.
Inhalation		
		Not classified based on the calculation method according to CLP regulation.
Dermal		
		Not classified based on the calculation method according to CLP regulation.
Irritation		
Skin		
Result	:	Classified based on the calculation method according to CLP regulation.
Eyes		
Result	:	Classified based on the calculation method according to CLP regulation.
Sensitisation		
Result	:	Not classified based on the calculation method according to CLP regulation.
CMR effects		
CMR Properties		
Carcinogenicity	:	Not classified based on the calculation method according to CLP regulation.

Mutagenicity	:	Not classified based on the calculation method according to CLP regulation.
Reproductive toxicity	:	Not classified based on the calculation method according to CLP regulation.

Specific Target Organ Toxicity

Single exposure

Remarks	:	Not classified based on the calculation method according to CLP regulation.

Repeated exposure

Remarks	:	Not classified based on the calculation method according to CLP regulation.

Other toxic properties

Repeated dose toxicity

No data available

Aspiration hazard

Not applicable,

Component:	**acetic acid...%**	**CAS-No. 64-19-7**

Acute toxicity

Oral

LD50	:	3530 mg/kg (Rat)

Inhalation

LC50	:	> 40 mg/l (Rat; 4 h)

Irritation

Skin

Result	:	Causes severe skin burns and eye damage.

Eyes

Result	:	Causes severe skin burns and eye damage. Causes serious eye damage.

CMR effects

CMR Properties

Carcinogenicity	:	Animal testing did not show any carcinogenic effects.
Mutagenicity	:	In vivo tests did not show mutagenic effects In vitro tests did not show mutagenic effects
Teratogenicity	:	Results from animal studies prove that this material is not teratogenic for non-toxic doses for the mother animal and is not toxic for embryonic or fetal development.

Genotoxicity in vitro

Result	:	negative (In vitro gene mutation study in mammalian cells; Test substance: Acetic anhydride) (OECD Test Guideline 476) negative (In vitro gene mutation study in mammalian cells) (OECD Test Guideline 473) negative (In vitro gene mutation study in non-mammalian cells) (OECD Test Guideline 471)

Genotoxicity in vivo

Result	:	negative (in vivo assay) (Test substance: Acetic anhydride) (OECD Test Guideline 474)

Teratogenicity

(Rabbit)(5 %; 13 d)(Directive 67/548/EEC, Annex V, B.31.)negative
(Rat)(5 %; 10 d)(Directive 67/548/EEC, Annex V, B.31.)negative
(Mouse)(5 %; 10 d)(Directive 67/548/EEC, Annex V, B.31.)negative

Specific Target Organ Toxicity

Single exposure

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, single exposure.

Repeated exposure

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Aspiration hazard

Not applicable,

11.2. Information on other hazards

Data for the product		
Endocrine disrupting properties		
Assessment Endocrine Disrupting Properties	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1. Toxicity

Component:	acetic acid...%	CAS-No. 64-19-7
Acute toxicity		
Fish		
LC50	:	> 300,82 mg/l (Oncorhynchus mykiss (rainbow trout); 96 h) (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates		
EC50	:	> 300,82 mg/l (Daphnia magna (Water flea); 48 h) (OECD Test Guideline 202)
algae		
EC50	:	> 300,82 mg/l (Skeletonema costatum (marine diatom); 72 h)
Bacteria		
EC10	:	1000 mg/l (Pseudomonas putida; 0,5 h)

12.2. Persistence and degradability

Component:	acetic acid...%	CAS-No. 64-19-7
Persistence and degradability		

Persistence		
Result	:	No data available

Biodegradability		
Result	:	95 % (Exposure Time: 5 d)Readily biodegradable.

12.3. Bioaccumulative potential

Component:	acetic acid...%	CAS-No. 64-19-7
Bioaccumulation		
Result	:	log Kow -0,17 (25 °C; pH 7)
	:	BCF: 3,16; Does not bioaccumulate.

12.4. Mobility in soil

Component:	acetic acid...%	CAS-No. 64-19-7
Mobility		
Water	:	The product is water soluble., The product will be dispersed amongst the various environmental compartments (soil/ water/ air).

12.5. Results of PBT and vPvB assessment

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

Component:	acetic acid...%	CAS-No. 64-19-7
Results of PBT and vPvB assessment		
Result	:	Not persistent, bioaccumulative, and toxic (PBT)., Not very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties

Data for the product

Assessment Endocrine Disrupting Properties	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects

Data for the product

Additional ecological information

Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. Harmful effects to aquatic organisms due to pH-shift.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

14.1. UN number or ID number

2790

14.2. UN proper shipping name

ADR : ACETIC ACID SOLUTION
RID : ACETIC ACID SOLUTION
IMDG : ACETIC ACID SOLUTION

14.3. Transport hazard class(es)

ADR-Class : 8

(Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)		8; C3; 80; (E)
RID-Class	:	8
(Labels; Classification Code; Hazard Identification Number)		8; C3; 80
IMDG-Class	:	8
(Labels; EmS)		8; F-A, S-B

14.4. Packaging group

ADR	:	II
RID	:	II
IMDG	:	II

14.5. Environmental hazards

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

14.6. Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Data for the product

EU. REACH, Annex XVII, Restrictions on manufacture, placing on the market and use of certain dangerous substances, 1907/2006/EC, as amended	:	Point Nos.: , 3; Listed
		Point Nos.: , 75; Listed
EU. Directive 2012/18/EU on major accident hazards involving dangerous substances, Annex I, as	:	; The substance/mixture does not fall under this legislation.

amended

Other regulations	:	SDS updated according to Regulation (EU) 2020/878

Component:	**acetic acid...%**	**CAS-No. 64-19-7**

EU. Chemicals Subject to Export Notification: Annex 1, Part 1, Regulation 649/2012/EU on export and import of dangerous chemicals, as amended	:	; The substance/mixture does not fall under this legislation.
EU. REACH, Annex XVII, Restrictions on manufacture, placing on the market and use of certain dangerous substances, 1907/2006/EC, as amended	:	Point Nos.: , 75; Listed Point Nos.: , 40; Listed Point Nos.: , 3; Listed
EU. Regulation 528/2012/EU concerning the making available on the market and use of biocidal products, Annex I: Active substances	:	EC Number: , 200-580-7; Category 1 - Substances authorised as food additives according to Regulation (EC) No 1333/2008; Concentration to be limited so that each biocidal product does not require classification according to either Directive 1999/45/EC or Regulation (EC) No 1272/2008.
EU. Directive 2012/18/EU on major accident hazards involving dangerous substances, Annex I, as amended	:	Qualifying quantity for the application of Lower-tier requirements: 5.000 tonnes; Part 1: Categories of dangerous substances; Flammable liquids, Categories 2 or 3 not covered by P5a and P5b, The information given is valid if the product is stored below the boiling point and at a pressure of 1013 hPa. Qualifying quantity for the application of Upper-tier requirements: 50.000 tonnes; Part 1: Categories of dangerous substances; Flammable liquids, Categories 2 or 3 not covered by P5a and P5b, The information given is valid if the product is stored below the boiling point and at a pressure of 1013 hPa.

Notification status
acetic acid...%:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	200-580-7
ENCS (JP)	YES	(2)-688
IECSC	YES	
INSQ	YES	
ISHL (JP)	YES	(2)-688
JEX (JP)	YES	(2)-688
KECI (KR)	YES	KE-00013
NZIOC	YES	HSR000975
NZIOC	YES	HSR001580
NZIOC	YES	HSR001581
NZIOC	YES	HSR001582
ONT INV	YES	
PHARM (JP)	YES	
PICCS (PH)	YES	
TCSI	YES	
TH INV	YES	2915.21
TH INV	YES	55-1-05132
TSCA	YES	
VN INVL	YES	

15.2. Chemical safety assessment

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

SECTION 16: Other information

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

H226	Flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Full text of the Notes referred to under section 3.

Note B	Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: "nitric acid ...%". In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

Abbreviations and Acronyms

AU AIICL	Australia. Industrial Chemicals Act (AIIC) List
BCF	bioconcentration factor
BOD	biochemical oxygen demand

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

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

Further information

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

|| Indicates updated section.

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	1, 4, 6a	NA	ES79
2	Use as an intermediate	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	6a	NA	ES12083
3	Distribution of substance	3	1, 2a, 2b, 4, 5, 6a, 6b, 7	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1, 2	NA	ES8
4	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 14, 15	2	NA	ES2319
5	Use in cleaning agents	3	5, 6a, 6b	NA	2, 3, 4, 7, 8a, 8b, 10, 13	4	NA	ES2409
6	Use in cleaning agents	22	NA	NA	1, 2, 3, 4, 8a, 8b, 10, 11, 13	8a, 8d	NA	ES2411
7	Use in cleaning agents	21	NA	3, 4, 8, 9a, 9b, 9c, 24, 35, 38	NA	8a, 8d	NA	ES2608
8	Use in agrochemicals	22	10	NA	1, 2, 3, 4, 8a, 8b, 11, 15	8d	NA	ES96
9	Use in agrochemicals	21	NA	12, 27	NA	8a, 8d	NA	ES2490
10	Use in agrochemicals	3	10	NA	1, 2, 3, 4, 8a, 8b, 15	1	NA	ES12081
11	Use in laboratories	3	10	NA	10, 15	4	NA	ES2466
12	Use in laboratories	22	NA	NA	10, 15	8a	NA	ES2470
13	Use as water treatment chemicals	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 15	1, 4	NA	ES2481
14	Use as water treatment chemicals	22	NA	NA	1, 2, 3, 4, 8a, 8b, 15	8f	NA	ES2483
15	Use in oil and gas field drilling and production operations	3	10	NA	1, 2, 3, 4, 8a, 8b, 15	1, 4	NA	ES2472

1. Short title of Exposure Scenario 1: Manufacture of substance	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

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

No exposure assessment presented for the environment, In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified..
, Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

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

Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Handle substance within a closed system.(PROC1, PROC2, PROC3, PROC4)	
	Handle in a fume cupboard or under extract ventilation.(PROC15)	
	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a, PROC8b)	
	Ensure material transfers are under containment or extract ventilation. Provide extraction ventilation at points where emissions occur.(PROC2, PROC3, PROC4)	
	Storage	Provide a good standard of general ventilation (not

	Product sampling	less than 3 to 5 air changes per hour).(PROC1, PROC2)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)	

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
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When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Confirm that RMMs and OCs are as described or of equivalent efficiency

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	
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	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15		
Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Handle substance within a closed system.(PROC1, PROC2, PROC3, PROC4)	
	Handle in a fume cupboard or under extract ventilation.(PROC15)	
	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a, PROC8b)	
	Ensure material transfers are under containment or extract ventilation. Provide extraction ventilation at points where emissions occur.(PROC2, PROC3, PROC4)	
	Storage Product sampling	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC1, PROC2)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)	
3. Exposure estimation and reference to its source		
Workers		

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
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When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Confirm that RMMs and OCs are as described or of equivalent efficiency

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	SU1: Agriculture, forestry, fishery SU2a: Mining, (without offshore industries) SU2b: Offshore industries SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6a: Manufacture of wood and wood products SU6b: Manufacture of pulp, paper and paper products SU7: Printing and reproduction of recorded media
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2

No exposure assessment presented for the environment, In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified..
, Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

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

Product characteristics	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
	Assumes use at not more than 20°C above ambient temperature.	
Frequency and duration of use	Covers daily exposures up to 8 hours	
Technical conditions and measures to control dispersion from source towards the worker	Batch process With sample collection	Handle substance within a closed system. Provide a good standard of general ventilation (not

		less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour.(PROC4)
	General exposures (closed systems)	Provide extract ventilation to points where emissions occur.(PROC4)
	Process sampling	Sample via a closed loop or other system to avoid exposure.(PROC8b)
	Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)
	Bulk transfers Closed systems	Clear lines prior to de-coupling. Provide extract ventilation to points where emissions occur.(PROC8b)
	Bulk transfers Open systems	Provide extract ventilation to points where emissions occur.(PROC8b)
	Drum and small package filling	Provide extract ventilation to points where emissions occur.(PROC9)
	Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance.(PROC8a, PROC8b)
	Storage with occasional controlled exposure	Store substance within a closed system. Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC2)
Conditions and measures related to personal protection, hygiene and health evaluation	Bulk transfers Closed systems	or If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.(PROC8b)
	Bulk transfers Open systems	If above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.(PROC8b)
	Equipment cleaning and maintenance	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)

3. Exposure estimation and reference to its source

Workers

ECETOC TRA Version 2 with modifications has been used. When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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	
Sectors of end-use	SU 10: Formulation	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC2: Formulation of preparations	

2.1 Contributing scenario controlling environmental exposure for: ERC2
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
	Assumes use at not more than 20°C above ambient temperature.	
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	General exposures (closed systems)	Handle substance within a closed system.(PROC1, PROC2)
	General exposures	Handle substance within a closed system.

(closed systems) With sample collection with occasional controlled exposure	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC2)
General exposures (closed systems) Use in contained batch processes	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.(PROC3)
General exposures (open systems) Batch process With sample collection with potential for aerosol generation	Provide extract ventilation to points where emissions occur.(PROC4)
Batch processes at elevated temperatures	Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 1 hour.(PROC3)
Process sampling	Sample via a closed loop or other system to avoid exposure.(PROC8b)
Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)
Bulk transfers	Ensure material transfers are under containment or extract ventilation.(PROC4, PROC8a, PROC8b)
Mixing operations (open systems) with potential for aerosol generation	Provide extract ventilation to points where emissions occur.(PROC4, PROC5)
Manual Transfer from/pouring from containers	Provide extract ventilation to points where emissions occur.(PROC8a)
Drum/batch transfers	Provide extract ventilation to points where emissions occur.(PROC3, PROC8a, PROC8b, PROC9)
Production or preparation or articles by tabletting, compression, extrusion or pelletisation	Provide extract ventilation to points where emissions occur.(PROC14)
Drum and small package filling	Ensure material transfers are under containment or extract ventilation.(PROC9)
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance.(PROC8a, PROC8b)
Storage Product sampling	Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC1,

		PROC2, PROC8b)
Conditions and measures related to personal protection, hygiene and health evaluation	Equipment cleaning and maintenance	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 5: Use in cleaning agents		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU6a: Manufacture of wood and wood products SU6b: Manufacture of pulp, paper and paper products	
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	

2.1 Contributing scenario controlling environmental exposure for: ERC4

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

2.2 Contributing scenario controlling worker exposure for: 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 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
	Limit the substance content in the product to 5 %.(PROC7, PROC10)	
Technical conditions and measures to control dispersion from source towards the worker	Bulk transfers	Ensure material transfers are under containment or extract ventilation.(PROC8a, PROC8b)
	Automated process with (semi) closed systems Drum/batch transfers	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1

	Use in contained systems	hour.(PROC8a, PROC8b)
	Application of cleaning products in closed systems	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC2, PROC4)
	Filling/ preparation of equipment from drums or containers. Dedicated facility	Ensure material transfers are under containment or extract ventilation.(PROC8b)
	Use in contained systems Treatment by heating	Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 4 hours.(PROC4)
	Degreasing small objects in cleaning station	Provide extract ventilation to points where emissions occur.(PROC13)
	Cleaning with low-pressure washers	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC10)
	Cleaning with high pressure washers	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 1 hour.(PROC7)
	Manual Surfaces Cleaning no spraying	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 4 hours.(PROC10)
	Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance.(PROC8a, PROC8b)
	Storage with occasional controlled exposure	Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation	Equipment cleaning and maintenance	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 6: Use in cleaning agents		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

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 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
	Limit the substance content in the product to 25 %.(PROC2, PROC4, PROC8a, PROC8b)	
	Limit the substance content in the product to 5 %.(PROC10, PROC11, PROC13)	
Technical conditions and measures to control dispersion from source towards the worker	Filling/ preparation of equipment from drums or containers. Dedicated facility	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8b)

Automated process with (semi) closed systems Use in contained systems	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC2)
Automated process with (semi) closed systems Use in contained systems Drum/batch transfers	Avoid carrying out operation for more than 4 hours.(PROC2, PROC3)
Semi-automated process (e.g.: Semi-automatic application of floor care and maintenance products)	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC4)
Filling/ preparation of equipment from drums or containers.	Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 1 hour.(PROC8a, PROC8b)
Manual Cleaning Dipping, immersion and pouring	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC13)
Cleaning with low-pressure washers Rolling, Brushing no spraying	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC10)
Cleaning with high pressure washers Spraying Outdoor	Ensure operation is undertaken outdoors.(PROC11)
Cleaning with high pressure washers Spraying Indoor	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC11)
Manual Surfaces Cleaning Spraying	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC10)
Ad hoc manual application via trigger sprays, dipping, etc.	Provide extract ventilation to points where emissions occur.(PROC10)
Ad hoc manual application via trigger sprays, dipping, etc.	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC10)

	Cleaning	Provide extract ventilation to points where emissions occur.(PROC4)
	Equipment cleaning and maintenance	Drain down and flush system prior to equipment opening or maintenance. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8a, PROC8b)
	Storage with occasional controlled exposure	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors.(PROC2)
Organisational measures to prevent /limit releases, dispersion and exposure	Filling/ preparation of equipment from drums or containers.	Provide basic employee training to prevent/minimize exposures(PROC8a, PROC8b)
	Cleaning with high pressure washers Spraying Outdoor	Provide basic employee training to prevent/minimize exposures(PROC11)
Conditions and measures related to personal protection, hygiene and health evaluation	Filling/ preparation of equipment from drums or containers. Dedicated facility	Wear suitable gloves tested to EN374.(PROC8b)
	Automated process with (semi) closed systems Use in contained systems	Wear suitable gloves tested to EN374.(PROC2)
	Automated process with (semi) closed systems Use in contained systems Drum/batch transfers	Wear suitable gloves tested to EN374.(PROC2, PROC3)
	Manual Cleaning Dipping, immersion and pouring	Wear suitable gloves tested to EN374.(PROC13)
	Cleaning with low-pressure washers Rolling, Brushing no spraying	Wear suitable gloves tested to EN374.(PROC10)
	Cleaning with high pressure washers Spraying Outdoor	Wear a respirator conforming to EN140 with Type A filter or better.(PROC11)
	Cleaning with high pressure washers Spraying Indoor	Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.(PROC11)
	Manual	Wear suitable gloves tested to EN374.(PROC10)

	Surfaces Cleaning Spraying	
	Ad hoc manual application via trigger sprays, dipping, etc.	Wear suitable gloves tested to EN374.(PROC10)
	Equipment cleaning and maintenance	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)
2.3 Contributing scenario controlling worker exposure for: PROC4		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 5%
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Application of cleaning products in closed systems Outdoor	Ensure operation is undertaken outdoors.(PROC4)

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 7: Use in cleaning agents		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC3: Air care products PC4: Anti-Freeze and de-icing products PC8: Biocidal products (e.g. Disinfectants, pest control) PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based products) PC38: Welding and soldering products (with flux coatings or flux cores.), flux products	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.		
2.2 Contributing scenario controlling consumer exposure for: PC3: Aircare, instant action (aerosol sprays)		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
	Physical Form (at time of use)	spray aerosol
Amount used	Amount used per event	0,1 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	4 Times per day
	Exposure duration per event	15 min
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use at ambient temperatures., 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: PC3: Aircare, continuous action (solid & liquid)		

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
	Physical Form (at time of use)	solid, liquid
Amount used	Amount used per event	0,48 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Frequency of use	8 Hours/event
Human factors not influenced by risk management	Exposed skin surface	36 cm²
Other given operational conditions affecting consumers exposure	Room size	20 m3
	Covers use at ambient temperatures., 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: PC4: Washing car window		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1%
Amount used	Amount used per event	0,5 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	1,2 min
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation.Covers use at ambient temperatures.	
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: PC4: Pouring into radiator		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 10%
Amount used	Amount used per event	2000 g(PC4)
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day

	Exposure duration per event	7 min
Human factors not influenced by risk management	Exposed skin surface	428 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC4 Washing car window)
	Covers use in a one car garage (34 m3) under typical ventilation.(PC4 Washing car window)	
	Covers use at ambient temperatures.	
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: PC4: Lock de-icer		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Amount used	Amount used per event	4 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	15 min
Human factors not influenced by risk management	Exposed skin surface	215 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3(PC4 Washing car window)
	Covers use in a one car garage (34 m3) under typical ventilation.(PC4 Washing car window)	
	Covers use at ambient temperatures.	
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: PC8: Laundry and dish washing products		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	30 min
Human factors not influenced by risk management	Exposed skin surface	858 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)	No specific risk management measure identified beyond those operational conditions stated.	
2.8 Contributing scenario controlling consumer exposure for: PC8: Cleaners, liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	27 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	20 min
Human factors not influenced by risk management	Exposed skin surface	858 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)	No specific risk management measure identified beyond those operational conditions stated.	
2.9 Contributing scenario controlling consumer exposure for: PC8: Cleaners, trigger sprays		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10 min
Human factors not influenced by risk management	Exposed skin surface	428 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)	No specific risk management measure identified beyond those operational conditions stated.	

2.10 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 2%
Amount used	Amount used per event	2760 g
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin surface	428 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)	No specific risk management measure identified beyond those operational conditions stated.	
2.11 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
Amount used	Amount used per event	744 g
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	132 min
Human factors not influenced by risk management	Exposed skin surface	428 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)	No specific risk management measure identified beyond those operational conditions stated.	
2.12 Contributing scenario controlling consumer exposure for: PC9a: Aerosol spray can		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 0,5%

Amount used	Amount used per event	215 g
Frequency and duration of use	Frequency of use	2 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	20 min
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.	
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% - 17%
Amount used	Amount used per event	491 g
Frequency and duration of use	Frequency of use	3 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Human factors not influenced by risk management	Exposed skin surface	856 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)	No specific risk management measure identified beyond those operational conditions stated.	
2.14 Contributing scenario controlling consumer exposure for: PC9b: Fillers and putty		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 2%
Amount used	Amount used per event	85 g
Frequency and duration of use	Frequency of use	12 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	240 min
Human factors not influenced by risk management	Exposed skin surface	38 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)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 0,6%
Amount used	Amount used per event	13800 g
Frequency and duration of use	Frequency of use	12 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	120 min
Human factors not influenced by risk management	Exposed skin surface	858 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)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Amount used	Amount used per event	1 g
	(swallowed)	
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin surface	255 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)	No specific risk management measure identified beyond those operational conditions stated.	

2.17 Contributing scenario controlling consumer exposure for: PC9c: Finger paints		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Amount used	Amount used per event	1,35 g
	(swallowed)	
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin surface	255 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)	No specific risk management measure identified beyond those operational conditions stated.	
2.18 Contributing scenario controlling consumer exposure for: PC24: Liquids		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 80%
Amount used	Amount used per event	2200 g
	(swallowed)	
Frequency and duration of use	Frequency of use	4 days/year
	Frequency of use	1 Times per day
Human factors not influenced by risk management	Exposed skin surface	468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.	
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: PC24: Pastes		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
Amount used	Amount used per event	34 g
Frequency and duration of use	Frequency of use	10 days/year
	Frequency of use	1 Times per day

Human factors not influenced by risk management	Exposed skin surface	468 cm²
Other given operational conditions affecting consumers exposure	Room size	34 m3
	Covers use in a one car garage (34 m3) under typical ventilation., Covers use at ambient temperatures.	
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.	

2.20 Contributing scenario controlling consumer exposure for: PC24: Sprays

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
Amount used	Amount used per event	34 g
Frequency and duration of use	Frequency of use	6 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10 min
Human factors not influenced by risk management	Exposed skin surface	468 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)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	15 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	30 min
Human factors not influenced by risk management	Exposed skin surface	858 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	No specific risk management measure identified beyond those operational	

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

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	27 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	20 min
Human factors not influenced by risk management	Exposed skin surface	858 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)	No specific risk management measure identified beyond those operational conditions stated.	

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 1,5%
Amount used	Amount used per event	35 g
Frequency and duration of use	Frequency of use	128 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	10 min
Human factors not influenced by risk management	Exposed skin surface	428 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)	No specific risk management measure identified beyond those operational conditions stated.	

2.24 Contributing scenario controlling consumer exposure for: PC38

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
Amount used	Amount used per event	12 g
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	1 Times per day
	Exposure duration per event	60 min
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)	No specific risk management measure identified beyond those operational conditions stated.	

3. Exposure estimation and reference to its source

Consumers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 8: Use in agrochemicals	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 10: Formulation
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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 PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8d

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified. Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary However a qualitative risk assessment is provided in section 9.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	

Technical conditions and measures to control dispersion from source towards the worker	Transfer from/pouring from containers	Use drum pumps or carefully pour from container. Avoid carrying out operation for more than 4 hours.(PROC8a, PROC8b)
	Equipment cleaning and maintenance Non-dedicated facility	Drain down system prior to equipment break-in or maintenance. Avoid carrying out operation for more than 4 hours. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Limit the substance content in the product to 5 %.(PROC8a, PROC8b)
	Spraying/ fogging by manual application	Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 5 %.
	Ad hoc manual application via trigger sprays, dipping, etc.	Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 5 %.
	Storage	Store substance within a closed system. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC1, PROC2)
	Storage Product sampling	Store substance within a closed system. Avoid carrying out operation for more than 4 hours.(Outdoor PROC1, PROC2)
	Spraying Machines	Avoid carrying out operation for more than 4 hours. Carry out in a vented booth provided with laminar airflow. Limit the substance content in the product to 5 %.
	Mixing in containers	Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 4 hours.(PROC4)
	Disposal of wastes Non-dedicated facility	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 5 %.(PROC8a)
Organisational measures to prevent /limit releases, dispersion and exposure	Spraying/ fogging by manual application	Provide basic employee training to prevent/minimize exposures
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)	
	Spraying/ fogging by manual application	Protective gloves complying with EN 374. Wear a respirator conforming to EN140 with Type A filter or better.
	Spraying Machines	Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 9: Use in agrochemicals	
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC12: 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

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

2.2 Contributing scenario controlling consumer exposure for: PC12, PC27

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 15%
	Physical Form (at time of use)	liquid
	Vapour pressure	2029 hPa
Amount used	Amount used per event	3 g
Frequency and duration of use	Exposure duration per event	120 min
	Frequency of use	1 Times per day
	Frequency of use	365 days/year
Human factors not influenced by risk management	Exposed skin surface	857 cm²
Other given operational conditions affecting consumers exposure	Covers use at ambient temperatures., Covers use under typical household ventilation., For each use event, assumes swallowed amount of 0.3 grams	
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

Consumers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 10: Use in agrochemicals		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU 10: Formulation	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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	
2.1 Contributing scenario controlling environmental exposure for: ERC1		
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.		
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified. Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary However a qualitative risk assessment is provided in section 9.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and	Transfer from/pouring	Use drum pumps or carefully pour from container.

measures to control dispersion from source towards the worker	from containers	Avoid carrying out operation for more than 4 hours.(PROC8a, PROC8b)
	Equipment cleaning and maintenance Non-dedicated facility	Drain down system prior to equipment break-in or maintenance. Avoid carrying out operation for more than 4 hours. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Limit the substance content in the product to 5 %.(PROC8a, PROC8b)
	Spraying/ fogging by manual application	Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 5 %.
	Ad hoc manual application via trigger sprays, dipping, etc.	Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 5 %.
	Storage	Store substance within a closed system. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC1, PROC2)
	Storage Product sampling	Store substance within a closed system. Avoid carrying out operation for more than 4 hours.(Outdoor PROC1, PROC2)
	Spraying Machines	Avoid carrying out operation for more than 4 hours. Carry out in a vented booth provided with laminar airflow. Limit the substance content in the product to 5 %.
	Mixing in containers	Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 4 hours.(PROC4)
	Disposal of wastes Non-dedicated facility	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour. Limit the substance content in the product to 5 %.(PROC8a)
Organisational measures to prevent /limit releases, dispersion and exposure	Spraying/ fogging by manual application	Provide basic employee training to prevent/minimize exposures
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)	
	Spraying/ fogging by manual application	Protective gloves complying with EN 374. Wear a respirator conforming to EN140 with Type A filter or better.
	Spraying Machines	Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 11: Use in laboratories		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU 10: Formulation	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.		
2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.	
Technical conditions and measures to control dispersion from source towards the worker	Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)
	Cleaning Rolling, Brushing Vessel and container cleaning With Local Exhaust Ventilation	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Avoid carrying out operation for more than 1 hour.(PROC10)
Conditions and measures related to personal protection, hygiene and health evaluation	Cleaning Rolling, Brushing Vessel and container cleaning With Local Exhaust Ventilation	Wear suitable gloves tested to EN374.(PROC10)
3. Exposure estimation and reference to its source		
Workers		

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario 12: Use in laboratories		
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process categories	PROC10: Roller application or brushing PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a		
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.		
2.2 Contributing scenario controlling worker exposure for: PROC10, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Laboratory activities	Handle in a fume cupboard or under extract ventilation.(PROC15)
	Cleaning Rolling, Brushing Vessel and container cleaning With Local Exhaust Ventilation	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Avoid carrying out operation for more than 1 hour.(PROC10)
Conditions and measures related to personal protection, hygiene and health evaluation	Cleaning Rolling, Brushing Vessel and container cleaning With Local Exhaust Ventilation	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC10)
3. Exposure estimation and reference to its source		
Workers		

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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 water treatment chemicals	
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

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
	Limit the substance content in the product to 25 %.(PROC4)	
Technical conditions and measures to control dispersion from source towards the worker	Bulk transfers	Ensure material transfers are under containment or extract ventilation. Avoid carrying out operation for more than 4 hours.(PROC8a, PROC8b)
	Pouring from small containers Treatment by dipping and	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Provide extract ventilation to points where

	pouring	emissions occur.(PROC8a)
	General exposures (open systems)	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC4)
	Equipment cleaning and maintenance	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment break-in or maintenance.(PROC8a)
	Drum/batch transfers Dedicated facility	Use drum pumps. Avoid spillage when withdrawing pump. Avoid carrying out operation for more than 4 hours.(PROC8b)
	General exposures (closed systems) Batch process	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour.(PROC3)
	Storage	Store substance within a closed system.(PROC1, PROC2)
Conditions and measures related to personal protection, hygiene and health evaluation	Pouring from small containers	Wear suitable gloves tested to EN374.(PROC8a)
	General exposures (open systems)	Wear suitable gloves tested to EN374.(PROC4)
	Equipment cleaning and maintenance	Wear suitable gloves tested to EN374.(PROC8a)
	Drum/batch transfers Dedicated facility	Wear suitable gloves tested to EN374.(PROC8b)

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 14: Use as 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 PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix	
2.1 Contributing scenario controlling environmental exposure for: ERC8f		
In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
	Limit the substance content in the product to 25 %.(PROC4)	
Technical conditions and measures to control dispersion from source towards the worker	Pouring from small containers Treatment by dipping and pouring	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC8a)
	General exposures (open systems)	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1

		hour.(PROC4)
	Equipment cleaning and maintenance	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Drain down system prior to equipment break-in or maintenance.(PROC8a)
	Drum/batch transfers Dedicated facility	Use drum pumps. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8b)
	General exposures (closed systems) Batch process	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour.(PROC3)
	Storage	Store substance within a closed system.
Conditions and measures related to personal protection, hygiene and health evaluation	Pouring from small containers	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC8a)
	General exposures (open systems)	Wear suitable gloves tested to EN374.(PROC4)
	Equipment cleaning and maintenance	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(PROC8a)
	Drum/batch transfers Dedicated facility	Wear suitable gloves tested to EN374.(PROC8b)

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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 oil and gas field drilling and production operations	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 10: Formulation
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/vPvB Assessment) no hazard was Identified., Therefore according on REACH Annex I (5.0) an exposure estimation and risk characterisation is not necessary.

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

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
	Physical Form (at time of use)	liquid
	Vapour pressure	> 100 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature.	
	Limit the substance content in the product to 25 %.(PROC4)	
Technical conditions and measures to control dispersion from source towards the worker	Bulk transfers	Ensure material transfers are under containment or extract ventilation.(PROC8a, PROC8b)
	Filling/ preparation of equipment from drums or containers.	Use drum pumps. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8a, PROC8b)
	Drill floor operations	Ensure operation is undertaken outdoors. or

		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC4)
	Operation of solids filtering equipment	Ensure material transfers are under containment or extract ventilation.(PROC4)
	Treatment and disposal of filtered solids	Ensure material transfers are under containment or extract ventilation.(PROC3)
	Process sampling	Use a sampling system designed to control exposure. Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8b)
	General exposures (closed systems)	Handle substance within a closed system.(PROC2)
	Pouring from small containers	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC8a)
	General exposures (open systems)	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 4 hours.(PROC4)
	Equipment cleaning and maintenance	Ensure operation is undertaken outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour.(PROC8a)
	Batch process Product sampling	Handle substance within a closed system. Provide extraction ventilation at points where emissions occur.(PROC4)
Conditions and measures related to personal protection, hygiene and health evaluation	Filling/ preparation of equipment from drums or containers.	Wear suitable gloves tested to EN374.(PROC8a, PROC8b)
	Pouring from small containers	Wear suitable gloves tested to EN374.(PROC8a)
	General exposures (open systems)	Wear suitable gloves tested to EN374.(PROC4)
	Equipment cleaning and maintenance	Wear suitable gloves tested to EN374.(PROC8a)

3. Exposure estimation and reference to its source

Workers

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

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