ConnectingChemistry

BRENNTAG

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

HYDROCHLORIC ACID 25 - 38%

Version 9.0 Print Date 2020/04/21

Revision date / valid from 2020/04/21 **MSDS code: MHCL100**

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

1.1. Product identifier

Trade name	:	HYDROCHLORIC ACID 25 - 38%
Substance name	:	hydrochloric acid
CAS-No.	:	7647-01-0
EC-No.	:	231-595-7
EU REACH-Reg. No.	:	01-2119484862-27-xxxx

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

Use of the Substance/Mixture	:	Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag UK Limited Alpha House, Lawnswood Business Park GB LS16 6QY Leeds
Telephone	:	+44 (0) 113 3879 200
Telefax	:	+44 (0) 113 3879 280
E-mail address	:	msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (open 24 hours): +44 (0) 1865 407333 (N.C.E.C. Culham)

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**
Corrosive to metals	Category 1	---	H290
Skin corrosion	Category 1A	---	H314

Serious eye damage	Category 1	---	H318
Specific target organ toxicity - single exposure	Category 3	Respiratory system	H335

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 :

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

Precautionary statements

Prevention :

P261	Avoid breathing dust/ fume/ gas/ 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.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
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:

• hydrochloric acid

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical nature : Aqueous solution

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
hydrochloric acid			
Index-No. : 017-002-01-X CAS-No. : 7647-01-0 EC-No. : 231-595-7 EU REACH-Reg. No. : 01-2119484862-27-xxxx	>= 25 - <= 38	Met. Corr.1 Skin Corr.1A Eye Dam.1 STOT SE3	H290 H314 H318 H335

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.

If inhaled : 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 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 : Rinse mouth with 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	: Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.
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 extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	The product itself does not burn. Contact with metals liberates hydrogen gas.
Hazardous combustion products	:	Hydrogen chloride gas

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. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

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

6.4. Reference to other sections

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. 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. Keep in an area equipped with acid resistant flooring. Suitable materials for containers: polyethylene; Polypropylene; Unsuitable materials for containers: Metals
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Keep in a well-ventilated place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Keep away from metals.

7.3. Specific end use(s)

Specific use(s) : No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Component:	hydrochloric acid	CAS-No. 7647-01-0

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL
Workers, Acute - local effects, Inhalation : 15 mg/m3

DNEL
Workers, Long-term - local effects, Inhalation : 8 mg/m3

Predicted No Effect Concentration (PNEC)

Fresh water : 36 µg/l

Marine water : 36 µg/l

Intermittent releases : 45 µg/l

Sewage treatment plant (STP) : 36 µg/l

Fresh water sediment :
Exposition is not expected.

Marine sediment :
Exposition is not expected.

Soil : 0.036 mg/kg

Other Occupational Exposure Limit Values

UK. EH40 Workplace Exposure Limits (WELs), as amended, Short Term Exposure Limit (STEL):, Gas and aerosol mists.
5 ppm, 8 mg/m3

UK. EH40 Workplace Exposure Limits (WELs), as amended, Time Weighted Average (TWA):, Gas and aerosol mists.
1 ppm, 2 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, Time Weighted Average (TWA):
5 ppm, 8 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):
10 ppm, 15 mg/m3
Indicative

ELV (IE), Time Weighted Average (TWA):
5 ppm, 8 mg/m3
Indicative OELV

ELV (IE), Short Term Exposure Limit (STEL):
10 ppm, 15 mg/m3, (15 minutes)
Indicative OELV

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. In case of intensive or longer exposure use self-contained breathing apparatus. Respiratory protection complying with EN 141. Recommended Filter type: Combination filter:B-P2

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	:	polychloroprene
Break through time	:	> 480 min
Glove thickness	:	0.5 mm

Material	:	Nitrile rubber
Break through time	:	> 480 min
Glove thickness	:	0.35 mm

Material	:	butyl-rubber
Break through time	:	> 480 min
Glove thickness	:	0.5 mm

Material	:	Polyvinylchloride
Break through time	:	> 480 min
Glove thickness	:	0.5 mm

Material	:	Fluorinated rubber
Break through time	:	> 480 min
Glove thickness	:	0.4 mm

Eye protection

Advice	:	Tightly fitting safety goggles Face-shield Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection

Advice	:	Acid resistant protective clothing.

Environmental exposure controls

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	colorless to light yellow
Odour	:	stinging
Odour Threshold	:	no data available
pH	:	< 1 (20 °C)

Freezing point/range	:	-42 °C 32% solution -29 °C 37% solution
Boiling point/boiling range	:	80 °C 32% solution 45 °C 37% solution
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	30 hPa (20 °C) 32% solution 200 hPa (20 °C) 37% solution
Relative vapour density	:	no data available
Density	:	1.15 g/cm3 (20 °C) 30% solution 1.17 g/cm3 (20 °C) 35% solution 1.18 g/cm3 (20 °C) 37% solution
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	Not applicable
Thermal decomposition	:	Heating can release hazardous gases.
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Explosivity	:	Product is not explosive.
Oxidizing properties	:	no data available

9.2. Other information

Corrosion to metals	:	Corrosive to metals

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 : Gives off hydrogen by reaction with metals.

10.4. Conditions to avoid

Conditions to avoid : Protect from frost, heat and sunlight.
Thermal decomposition : Heating can release hazardous gases.

10.5. Incompatible materials

Materials to avoid : Metals, Oxidizing agents, Reducing agents, perchlorates, Sulphides, Peroxides, nitrates

10.6. Hazardous decomposition products

Hazardous decomposition products : Hydrogen chloride gas

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Data for the product	
Acute toxicity	
Oral	
	Please find this information in the listing of the component/components below in this section.
Inhalation	
	Not classified based on the calculation method according to CLP regulation. The toxicity of the product is based on its corrosivity.
Dermal	
	Not classified based on the calculation method according to CLP regulation. The toxicity of the product is based on its corrosivity.
Irritation	
Skin	
Result :	Causes skin burns.
Eyes	
Result :	Causes eye burns.
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.
Teratogenicity	:	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 : May cause respiratory irritation.

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,

Further information

Other relevant toxicity information : If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Component: hydrochloric acid CAS-No. 7647-01-0

Acute toxicity

Oral

LD50 : 2222 mg/kg (Rat) (Calculation method)

Inhalation

LC50 : 45.6 mg/l (Rat, male; 5 min) (No guideline followed)

Dermal

LD50 Dermal	:	> 5010 mg/kg (Rabbit) 31.5 % solution

Irritation

Skin

Result	:	corrosive effects (Rabbit; 1 - 4 h) (OECD Test Guideline 404)

Eyes

Result	:	Causes serious eye damage. (Rabbit) (OECD - Guideline 405)

Sensitisation

Result	:	not sensitizing (Guinea pig) (Maximisation Test)

CMR effects

CMR Properties

Carcinogenicity	:	Did not show carcinogenic effects in animal experiments.
Mutagenicity	:	In vitro tests did not show mutagenic effects
Teratogenicity	:	No valid data available.
Reproductive toxicity	:	Animal testing did not show any effects on fertility.

Genotoxicity in vitro

Result	:	negative (Ames test; Salmonella typhimurium; with and without metabolic activation) negative (Cytogenetic test; Mouse; with and without metabolic activation)

Specific Target Organ Toxicity

Single exposure

Inhalation	:	Target Organs: Respiratory systemMay cause respiratory irritation.

Repeated exposure

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

Other toxic properties

Repeated dose toxicity

NOAEC	:	15 mg/m³
		(Rat)(Inhalation)

Aspiration hazard

Not applicable,

SECTION 12: Ecological information

12.1. Toxicity

Data for the product

Acute toxicity

Short-term (acute) aquatic hazard

Result	:	The product is not classified as dangerous for the environment.

Component:	**hydrochloric acid**	**CAS-No. 7647-01-0**

Acute toxicity

Fish

LC50	:	20.5 mg/l (Lepomis macrochirus; 24 h)

Toxicity to daphnia and other aquatic invertebrates

EC50	:	0.45 mg/l (Daphnia magna; 48 h) (OECD Test Guideline 202)

algae

ErC50	:	0.73 mg/l (Chlorella vulgaris (Fresh water algae); 72 h) (End point: Growth rate; OECD Test Guideline 201)

Bacteria

EC50	:	0.23 mg/l (activated sludge; 3 h) (End point: Respiration inhibition; OECD Test Guideline 209)

M-Factor

M-Factor (Acute Aquat. Tox.)	:	1

12.2. Persistence and degradability

Component:	hydrochloric acid	CAS-No. 7647-01-0
Persistence and degradability		
Persistence		
Result	:	The product is water soluble.
Biodegradability		
Result	:	The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component:	hydrochloric acid	CAS-No. 7647-01-0
Bioaccumulation		
Result	:	Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	hydrochloric acid	CAS-No. 7647-01-0
Mobility		
Soil	:	Not expected to adsorb on soil.
Water	:	The product is water soluble.

12.5. Results of PBT and vPvB assessment

Component:	hydrochloric acid	CAS-No. 7647-01-0
Results of PBT and vPvB assessment		
Result	:	The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. 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.
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

1789

14.2. UN proper shipping name

ADR	:	HYDROCHLORIC ACID
RID	:	HYDROCHLORIC ACID
IMDG	:	HYDROCHLORIC ACID

14.3. Transport hazard class(es)

ADR-Class	:	8
(Labels; Classification Code; Hazard Identification Number; Tunnel restriction code)		8; C1; 80; (E)
RID-Class	:	8
(Labels; Classification Code; Hazard Identification Number)		8; C1; 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. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

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, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 3; Listed

Component: hydrochloric acid CAS-No. 7647-01-0

EU. Regulation EU No. 649/2012 concerning the export and import of dangerous chemicals	:	; The substance/mixture does not fall under this legislation.
EU. Regulation 273/2004, Drug Precursors, Category 3	:	Scheduled substance Combined Nomenclature (CN) code: , 2806 10 00; Combined Nomenclature designation
EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC)	:	Point Nos.: , 3; Listed

EU. Directive 98/8/EC, Annex 1, Active substances in biocidal products	:	Minimum purity: 999, g/kg; Disinfectants and algaecides not intended for direct application to humans or animals; Special provisions may apply; see text of legislation. Deadline for Compliance: , 30 Apr 2016 Inclusion Date: , 1 May 2014 Expiry Date of Inclusion: , 30 Apr 2024
EU. Regulation No 1451/2007 [Biocides], Annex I, OJ (L 325)	:	EC Number: , 231-595-7; Listed
EU. Directive 2012/18/EU (SEVESO III) Annex I	:	; The substance/mixture does not fall under this legislation.
UK. Releases to air and water (UK ISR)	:	Annual reporting level threshold: 10,000 kg

Notification status hydrochloric acid:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	231-595-7
ENCS (JP)	YES	(1)-215
IECSC	YES	
ISHL (JP)	YES	(1)-215
KECI (KR)	YES	97-1-203
KECI (KR)	YES	KE-20189
NZIOC	YES	HSR004090
PICCS (PH)	YES	
TSCA	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.

H290	May be corrosive to metals.

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Abbreviations and Acronyms

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
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
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
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
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.

HYDROCHLORIC ACID 25 - 38%

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, 9, 15	1, 2	NA	ES0004963
2	Formulation & (re)packing of substances and mixtures	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9	2	NA	ES0004648
3	Consumer use	21	NA	20, 21, 35, 37, 38	NA	8b, 8e	NA	ES0004794
4	Use as an intermediate	3	4, 8, 9, 11, 12, 13, 19	NA	1, 2, 3, 4, 9, 15	6a	NA	ES0004629
5	Industrial use	3	2a, 2b, 5, 14, 15, 16	NA	1, 2, 3, 4, 9, 10, 13, 15, 19	4, 6b	NA	ES0004683
6	Professional use	22	20, 23	NA	1, 2, 3, 4, 8a, 10, 11, 13, 15, 19	8a, 8b, 8e	NA	ES0004748

1. Short title of Exposure Scenario 1: Manufacture of substance		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations	
2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
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	Application Area	Industrial use
	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Prevent leaks and prevent soil / water pollution caused by leaks. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0.5 - 10 kPa
	Process Temperature	20 °C
	Assumes use at not more than 20°C above ambient temperature., It should be noted that the process temperature may be higher, but the substance temperature is down to ambient at worker contact points.	
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	480 min
	Exposure duration per	< 60 min(Without Local Exhaust Ventilation

	day	PROC15)
	Frequency of use	5 days/week(Without Local Exhaust Ventilation PROC15)
Technical conditions and measures to control dispersion from source towards the worker	Avoid splashing.	
	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3, PROC4)	
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Use drum pumps. Use bulk or semi-bulk handling systems.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC8a, PROC8b)	
	Handle substance within a predominantly closed system provided with extract ventilation.(PROC8a, PROC8b, PROC9)	
	Fill containers/cans at dedicated filling points supplied with local extract ventilation.(PROC9)	
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Ensure that no inhalable aerosols are generated	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m³	0
PROC2	---	Worker - inhalative, long-term - local	1.50mg/m³	0.2
PROC4	---	Worker - inhalative, long-term - local	3.00mg/m³	0.4
PROC3	---	Worker - inhalative, long-term - local	3.75mg/m³	0.5
PROC8a, PROC8b, PROC9	---	Worker - inhalative, long-term - local	7.50mg/m³	0.9
PROC15	---	Worker - inhalative, long-term - local	1.8mg/m³	0.9

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 2: Formulation & (re)packing of substances and mixtures		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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)	
Environmental Release Categories	ERC2: Formulation of preparations	
Activity	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.	
2.1 Contributing scenario controlling environmental exposure for: ERC2		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
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	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Prevent leaks and prevent soil / water pollution caused by leaks.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0.5 - 10 kPa
	Process Temperature	20 °C
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	< 8 h
	Frequency of use	5 days/week

Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Technical conditions and measures to control dispersion from source towards the worker	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4, PROC5)
	Avoid splashing.(PROC9, PROC15)
	Handle substance within a predominantly closed system provided with extract ventilation. (Efficiency: 90 %)(PROC8a, PROC8b, PROC9, PROC15)
	Clear transfer lines prior to de-coupling. Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Use bulk or semi-bulk handling systems.(PROC4)
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC8a, PROC8b, PROC15)
	Use drum pumps.(PROC4, PROC5)
	Transfer materials directly to mixing vessels.(PROC5)
	Fill containers/cans at dedicated filling points supplied with local extract ventilation. (Efficiency: 90 %)(PROC9, PROC15)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.
	Wear suitable gloves tested to EN374.(PROC3)
Risk management measures are based on qualitative risk characterisation.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m3	0
PROC2	---	Worker - inhalative, long-term - local	1.50mg/m3	0.2
PROC3	---	Worker - inhalative, long-term - local	3.75mg/m³	0.5
PROC4	---	Worker - inhalative, long-term - local	3.00mg/m3	0.4
PROC5, PROC8a, PROC8b, PROC9	---	Worker - inhalative, long-term - local	7.50mg/m³	0.9

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

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

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

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 3: Consumer use		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21: Laboratory chemicals PC35: Washing and cleaning products PC37: Water treatment chemicals PC38: Welding and soldering products (with flux coatings or flux cores.), flux products	
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8b, ERC8e		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
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	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Prevent leaks and prevent soil / water pollution caused by leaks. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.	
2.2 Contributing scenario controlling consumer exposure for: PC20, PC21, PC35, PC37, PC38		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 20 %.
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0.5 - 10 kPa
	Process Temperature	20 °C
Amount used	Amount used per event	500 mL
Frequency and duration of use	Exposure duration per event	240 min
	Frequency of use	5 Times per year:
Human factors not influenced by risk management	Assumes use at not more than 20°C above ambient temperature.	
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Application Route	Consumer use
	Exposure routes	Dermal exposure
	Consumer Measures	The substance may cause local irritating effects No systemic effects. Always use protective gloves during the handling and application activities mentioned under the Product Categories above.
	Risk management measures are based on qualitative risk characterisation.	
3. Exposure estimation and reference to its source		
Environment		

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Consumers

Exposures have not been estimated as the substance only causes local dermal and/or inhalatory effects and no systemic effects. The use is assessed to be safe.

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 4: 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	SU4: Manufacture of food products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU19: Building and construction work	
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
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: ERC6a		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
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	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Prevent leaks and prevent soil / water pollution caused by leaks.	
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0.5 - 10 kPa
	Process Temperature	20 °C
	Assumes use at not more than 20°C above ambient temperature., It should be noted that the process temperature may be higher, but the substance temperature is down to ambient at worker contact points.	
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	< 8 h

	Exposure duration per day	< 1 h(Without Local Exhaust Ventilation PROC15)
	Frequency of use	5 days/week(Without Local Exhaust Ventilation PROC15)
Technical conditions and measures to control dispersion from source towards the worker	Avoid splashing.	
	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3, PROC4)	
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4)	
	Use drum pumps. Use bulk or semi-bulk handling systems.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4)	
	Handle substance within a predominantly closed system provided with extract ventilation. Fill containers/cans at dedicated filling points supplied with local extract ventilation. (Efficiency: 90 %)(PROC9)	
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures Ensure that no inhalable aerosols are generated	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
	Wear suitable gloves tested to EN374.(PROC3)	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m3	0
PROC2	---	Worker - inhalative, long-term - local	1.50mg/m3	0.2
PROC3	---	Worker - inhalative, long-term - local	3.75mg/m³	0.5
PROC4	---	Worker - inhalative, long-term - local	3.00mg/m3	0.4
PROC9	---	Worker - inhalative, long-term - local	7.5mg/m³	0.9
PROC15	---	Worker - inhalative, long-term - local	1.8mg/m³	0.9

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

Exposure Scenario

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 5: Industrial use	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU2a: Mining, (without offshore industries) SU2b: Offshore industries SU5: Manufacture of textiles, leather, fur SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU16: Manufacture of computer, electronic and optical products, electrical equipment
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6b: Industrial use of reactive processing aids

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6b		
No exposure assessment presented for the environment		
Amount used	Not applicable	
Frequency and duration of use	Continuous exposure	360 days/year
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	Water	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. Prevent leaks and prevent soil / water pollution caused by leaks.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC9, PROC10, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0.5 - 10 kPa
	Process Temperature	< 100 °C
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	< 8 h
	Exposure duration per	< 1 h(Without Local Exhaust Ventilation PROC15)

	day	
	Frequency of use	5 days/week(Without Local Exhaust Ventilation PROC15)
Other operational conditions affecting workers exposure	Operation is carried out at elevated temperature (> 20°C above ambient temperature).(PROC13)	
Technical conditions and measures to control dispersion from source towards the worker	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3)	
	Handle substance within a closed system.(PROC1, PROC2, PROC3)	
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3)	
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4)	
	Use bulk or semi-bulk handling systems. Use drum pumps.(PROC4)	
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4)	
	Handle substance within a predominantly closed system provided with extract ventilation. Fill containers/cans at dedicated filling points supplied with local extract ventilation. (Efficiency: 90 %)(PROC9)	
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) (Efficiency: 90 %)(PROC10)	
	Provide extract ventilation to material transfer points and other openings. (Efficiency: 90 %)(PROC13)	
	Carry out in a vented booth provided with laminar airflow.(PROC13)	
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)	
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.	
	Wear suitable gloves tested to EN374.(PROC3, PROC10, PROC13, PROC19)	
	Do not carry out the operation for more than 15 min. without respiratory protection Wear a respirator conforming to EN140 with Type A filter or better.(PROC19)	
Risk management measures are based on qualitative risk characterisation.		

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC1: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - local	0.02mg/m³	0
PROC2	---	Worker - inhalative, long-term - local	1.50mg/m3	0.2
PROC3	---	Worker - inhalative, long-term - local	3.75mg/m³	0.5
PROC4, PROC9,	---	Worker - inhalative, long-	3.00mg/m3	0.4

PROC10, PROC13, PROC19		term - local		
PROC15	---	Worker - inhalative, long-term - local	1.8mg/m³	0.9

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 6: Professional use	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU20: Health services SU23: Electricity, steam, gas water supply and sewage treatment
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8e		
No exposure assessment presented for the environment		
Frequency and duration of use	Continuous exposure	360 days/year
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	Water	Ensure all waste water is collected and treated via a WWTP., All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Prevent leaks and prevent soil / water pollution caused by leaks.	

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC10, PROC11, PROC13, PROC15, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 40 %
	Physical Form (at time of use)	Liquid, moderate fugacity
	Vapour pressure	0.5 - 10 kPa
	Process Temperature	20 °C
	Assumes use at not more than 20°C above ambient temperature.	
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Frequency of use	5 days/week
	Covers daily exposures up to 8 hours	
	Avoid carrying out operation for more than 15 minutes.(without respiratory protection PROC11, PROC19)	
	Avoid carrying out operation for more than 1 hour.(Without Local Exhaust	

	Ventilation PROC15)
	Avoid carrying out operation for more than 4 hours.(PROC15)
Technical conditions and measures to control dispersion from source towards the worker	Handle substance within a closed system.(PROC1, PROC2, PROC3)
	Ensure material transfers are under containment or extract ventilation. (Efficiency: 90 %)(PROC2, PROC3, PROC4)
	Clear transfer lines prior to de-coupling.(PROC1, PROC2, PROC3, PROC4, PROC8a)
	Drain down and flush system prior to equipment opening or maintenance.(PROC3, PROC4)
	Use bulk or semi-bulk handling systems. Use drum pumps.(PROC4)
	Provide extraction ventilation at points where emissions occur. (Efficiency: 90 %)(PROC4, PROC8a, PROC11)
	Handle substance within a predominantly closed system provided with extract ventilation. (Efficiency: 90 %)(PROC8a)
	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) (Efficiency: 90 %)(PROC10)
	Carry out in a vented booth provided with laminar airflow. Allow time for product to drain from workpiece. Automate activity where possible.(PROC13)
	Provide extract ventilation to material transfer points and other openings. (Efficiency: 90 %)(PROC13)
	Handle in a fume cupboard or under extract ventilation. Carry out in a vented booth or extracted enclosure. (Efficiency: 80 %)(PROC15)
Organisational measures to prevent /limit releases, dispersion and exposure	Provide basic employee training to prevent/minimize exposures
	Ensure minimization of manual phases(PROC13)
	Avoid carrying out operation for more than 4 hours.(PROC15)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Wear chemically resistant gloves.
	Wear suitable gloves tested to EN374.(PROC3, PROC10, PROC11, PROC13, PROC19)
	Wear a half face respirator conforming to EN140 Type A filter or better(PROC11, PROC19)
	Do not carry out the operation for more than 15 min. without respiratory protection(PROC11, PROC19)
	Wear suitable gloves tested to EN374.(PROC3)
	Wear a respirator conforming to EN140 with Type A filter or better.
Risk management measures are based on qualitative risk characterisation.	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment. Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk.

Workers

PROC2: Use of ECETOC TRA Version 2 with modifications.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term - local	1.50mg/m3	0.2
PROC3	---	Worker - inhalative, long-term - local	3.75mg/m³	0.5
PROC8a,	---	Worker - inhalative, long-	7.50mg/m³	0.9

PROC10, PROC13, PROC11, PROC19		term - local		
PROC4	---	Worker - inhalative, long-term - local	3.00mg/m3	0.4
PROC15	---	Worker - inhalative, long-term - local	1.8mg/m³	0.9

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For further information on the assessment method, see: http://www.ecetoc.org/tra
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.