Dr. Grogg Chemie AG
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COVER SHEET FOR THE SAFETY DATA SHEET

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Item number: G850

Trade name: Hydrochloric acid 25% pure

Supplier:
Dr. Grogg Chemie AG
Gümligentalstrasse 83
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Emergency number:
24-hour emergency number: 145
Help with poisoning. Tox Info Suisse provides free medical advice round the clock in cases of poisoning or suspected poisoning.

Tox Info Suisse
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8032 Zürich
Tel. +41 (0) 44 251 51 51
www.toxinfo.ch

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

HYDROCHLORIC ACID TECHN. 32%

Version 3.0 Print Date 25.11.2026

Revision date / valid from 11.09.2025

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

1.1. Product identifier

Trade name	:	HYDROCHLORIC ACID TECHN. 32%
Substance name	:	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
UFI	:	MG3J-R0KE-D00T-DTC0
UFI code notified in	:	Austria, Germany, Denmark, Estonia, Spain, France, Croatia, Ireland, Iceland, Liechtenstein, Lithuania, Latvia, Malta, Netherlands, Norway, 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

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag Schweizerhall AG Elsässerstrasse 231 CH 4002 Basel
Telephone	:	+41 (0)58 344 80 00
Telefax	:	+41 (0)58 344 82 08
E-mail address	:	doku@brenntag.ch
Responsible/issuing person	:	Abteilung Produktsicherheit

1.4. Emergency telephone number

Emergency telephone number	:	Swiss Toxicological Information Centre CH-8032 ZÜRICH Tel.: +41 (0) 44 251 51 51 National emergency call: 145

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

The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

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.

The vapour may be invisible, heavier than air and spread along ground. The formation of caustic fumes is possible.

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	> 30 - <= 35	Met. Corr.1 Skin Corr.1A Eye Dam.1 STOT SE3 specific concentration limit STOT SE 3; H335 >= 10 % Skin Corr. 1A; H314 >= 25 % Skin Corr. 1B; H314 10 - < 25 % Eye Dam. 1; H318	H290 H314 H318 H335

		>= 1 % Met. Corr. 1; H290 >= 0,1 % 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	: 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.
Fire-fighting class	:	non-combustible
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.
German storage class	:	8B Non-combustible corrosive substances

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:	**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

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

Switzerland. OELs. Limit Values at the Workplace, as per SUVA, as amended, Time Weighted Average (TWA):
2 ppm, 3 mg/m3

Switzerland. OELs. Limit Values at the Workplace, as per SUVA, as amended
If in compliance with the OEL and BEL values, then there should be no risk of reproductive damage.

Switzerland. OELs. Limit Values at the Workplace, as per SUVA, as amended, Short Term Exposure Limit (STEL):
4 ppm, 6 mg/m3

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. Recommended Filter type: Combination filter:B-P2 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	:	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	:	Face-shield Tightly fitting safety goggles (EN166)

Skin and body protection

Protecting Clothes	:	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
Physical state	:	liquid
Colour	:	colourless, light yellow
Odour	:	stinging
Odour Threshold	:	No data available
Freezing point/range	:	-42 °C 32% solution
Boiling point/boiling range	:	80 °C 32% solution
Flammability (solid, gas)	:	Product is a liquid, see section 9.2. Remarks: non-combustible
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Heating can release hazardous gases.
Self-Accelerating decomposition temperature (SADT)	:	No data available
pH	:	-1,1 - -0,9 Concentration: 100 % Method: (calculated)
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	1,7 mm2/s
Flow time	:	No data available
Solubility(ies)		
Water solubility	:	completely miscible

Solubility in other solvents	:	No data available
Dissolution Rate	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Dispersion Stability	:	No data available
Vapour pressure	:	30 hPa (20 °C) 32% solution
Relative density	:	No data available
Density	:	ca. 1,14 - 1,18 g/cm3 (20 °C) 1,17 g/cm3 (20 °C) 34% solution
Bulk density	:	No data available
Relative vapour density	:	1,26 (20 °C)
Particle characteristics		
Particle size	:	Not applicable
Polymer characteristics	:	No data available

9.2 Other information

Explosives	:	Product is not explosive.
Flammability (liquids)	:	non-combustible Remarks: non-combustible
Corrosion to metals	:	Corrosive to metals
Evaporation rate	:	No data available

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 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., The toxicity of the product is based on its corrosivity.
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	:	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.
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	:	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,

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	:	> 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 Test 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,

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.

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

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: 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)

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

Data for the product		
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.

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. 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.

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

Component:	hydrochloric acid	CAS-No. 7647-01-0
Additional ecological information		
Result	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

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 can be defined for this product in accordance with the Ordinance on the Movement of Waste (VeVA), as the intended use dictates the assignment. The waste code is established in consultation with a regional waste disposer, such as: Brenntag Schweizerhall AG Lohnmatte 1 4573 Lohn-Ammannsegg Switzerland Phone: +41 58 344 84 00 infolohn@brenntag.ch

SECTION 14: Transport information

14.1. UN number or ID number

1789

14.2. UN proper shipping name

ADR : HYDROCHLORIC ACID
RID : HYDROCHLORIC ACID
IMDG : HYDROCHLORIC ACID
IATA_C : Hydrochloric acid
IATA_P : 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
IATA_C-Class	: 8
(Labels)	8
IATA_P-Class	: 8
(Labels)	8

14.4. Packaging group

ADR : II

RID : II
IMDG : II
IATA_C : II
IATA_P : II

14.5. Environmental hazards

Environmentally hazardous according to ADR	: no
Environmentally hazardous according to RID	: no
Marine Pollutant according to IMDG-Code	: no
Environmentally hazardous according to IATA	: no
Environmentally hazardous according to IATA	: 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 amended	:	; The substance/mixture does not fall under this legislation.
CPID	:	975930-59
Threshold quantity MAO	:	20.000 kg (2015 determined by law SR814.012 Ann. 1 ch. 4)
Ordinance protection of air	:	LRV (CH): chapter 62 - class 3

Ordinance on Chemical Risik Reduction:

Annex	:	Annex 1.11: Hazardous liquids
Other regulations	:	Article 4 paragraph 1bis, Article 4 paragraph 4 of the Youth Employment Protection Ordinance (SR 822.115); articles 5 and 6 of the EAER Ordinance on Hazardous Work for Young People (SR 822.115.2): Young people undergoing basic vocational training may only work with this product (substance/preparation) if the relevant training ordinance makes provision for them to do so with a view to enabling them to achieve their training objectives and if the preconditions for the training plan have been met and the applicable age restrictions have been complied with. Young people who are not undergoing any basic vocational training are not permitted to work with this product (substance/preparation). Young people with a Federal vocational education and training (VET) Certificate or a Federal VET Diploma may carry out hazardous work with this product (substance/preparation) within the profession they have learned. Male and female employees who are under 18 years old are classed as young people. The product belongs to group 2 according to the Swiss Chemicals Ordinance (ChemO 813.11).

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

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. Regulation 273/2004, Drug Precursors, Category 3	:	Scheduled substance Combined Nomenclature (CN) code: , 2806 10 00; Combined Nomenclature designation
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.: , 3; Listed

EU. Directive 98/8/EC, Annex 1, Active substances in biocidal products	:	Minimum purity: 999, g/kg; Private area and public health area disinfectants and other biocidal products; 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. Directive 2012/18/EU on major accident hazards involving dangerous substances, Annex I, as amended	:	; The substance/mixture does not fall under this legislation.
Switzerland. Narcotics List G: Auxiliary chemicals subject to BetmKV control measures, Narcotics Lists Ordinance (BetmVV-EDI)	:	Total export limit per calendar year for designated countries: 100, kg; List G: Auxiliary chemicals subject to BetmKV control measures.

Notification status
hydrochloric acid:

Regulatory List	Notification	Notification number
VN INVL	YES	
TH INV	YES	55-1-05940
TH INV	YES	2806.10
PHARM (JP)	YES	
AU AIICL	YES	
TSCA	YES	
EINECS	YES	231-595-7
DSL	YES	
KECI (KR)	YES	97-1-203
KECI (KR)	YES	KE-20189
ENCS (JP)	YES	(1)-215
ISHL (JP)	YES	(1)-215
NZIOC	YES	HSR004090
IECSC	YES	
ONT INV	YES	
INSQ	YES	
TCSI	YES	
PICCS (PH)	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.

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

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	REACH Auth. No.:/ REACH AuthAppC. No.	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Formulation & (re)packing of substances and mixtures	NA	3	10	NA	1, 2, 3, 4, 5, 8a, 8b, 9	2	NA	ES0004648
2	Consumer use	NA	21	NA	20, 21, 35, 37, 38	NA	8b, 8e	NA	ES0004794
3	Manufacture of substance	NA	3	8, 9	NA	1, 2, 3, 4, 8a, 8b, 9, 15	1, 2	NA	ES0004963
4	Use as an intermediate	NA	3	4, 8, 9, 11, 12, 13, 19	NA	1, 2, 3, 4, 9, 15	6a	NA	ES0004629
5	Industrial use	NA	3	2a, 2b, 5, 14, 15, 16	NA	1, 2, 3, 4, 8b, 9, 10, 13, 15, 19	4, 6b	NA	ES0004683
6	Professional use	NA	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: 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: https://www.ecetoc.org/
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: 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 3: 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		
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	Provide onsite wastewater treatment.	
Conditions and measures related to external recovery of waste	Recovery Methods	External treatment and disposal of waste should comply with applicable local and/or national regulations.
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : >35% - 40%
	Physical Form (at time of use)	Aqueous solution
Amount used	Varies between milliliters (sampling) and cubic meters (material transfers).	
Frequency and duration of use	Exposure duration per day	<= 480 min(PROC1)
	Exposure duration per day	<= 240 min(PROC2)
Other operational conditions affecting workers exposure	Assumes activities are at ambient temperature., (unless stated differently)	
Technical conditions and	Avoid splashing.	

measures to control dispersion from source towards the worker	Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
	Handle substance within a closed system. Clear lines prior to de-coupling.(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	Ensure that no inhalable aerosols are generated Ensure operatives are trained to minimise exposures.
	Flush, purge and vent vessel lines before cleaning or maintenance.(PROC1, PROC2, PROC3)
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 (tested to EN374) in combination with specific activity training.
	Wear respiratory protection.(PROC1, PROC2, PROC3)
Risk management measures are based on qualitative risk characterisation.	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC1	---	all compartments	---	---	---
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: https://www.ecetoc.org/
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 4: 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: https://www.ecetoc.org/
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 PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring 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, PROC8b, 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
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 %)(PROC8b, 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		
PROC8b	---	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

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.
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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: Recycling	
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

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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.