SAFETY DATA SHEET

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

1.1 Product identifier

- Product Name: Hydrochloric Acid 32%
- Datasheet Number: SDS 081
- Chemical Name: Hydrochloric acid ... %
- CAS No.: 7647-01-0
- EC No.: 231-595-7
- REACH Registration Number: 01-2119484862-27-XXXX

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

- Use of the substance/mixture: Pool / spa treatment
- Use advised against: No information available

1.3 Details of the supplier of the safety data sheet

- Name of Supplier: Plastica Ltd
- Address of Supplier: Perimeter House
Napier Road
St Leonards-on-Sea
East Sussex
United Kingdom
TN38 9NY
- Telephone: +44 (0) 1424 857857
- Email: info@plasticapools.net

1.4 Emergency telephone number

- Emergency Telephone: 0800 043 0891 (technical)
0800 043 0892 (emergency)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

- Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]: Met. Corr. 1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318; STOT SE 3, H335
- Additional information: For full text of Hazard and EU Hazard statements: see section 16

2.2 Label elements

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

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
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

SECTION 2: Hazards identification (....)

with water or shower.
P304+P340+P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard information (EU)

None

2.3 Other hazards

- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII
- Has not been identified as having endocrine disrupting properties

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical Name	Conc.	CAS No.	EC No.	Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]	SCL/ M-Factor/ ATE	REACH Registration Number	WEL/ OEL
Hydrochloric acid ... %	25 - 38%	7647-01-0	231-595-7	Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335	Eye Irrit. 2 H319: 10 % ≤ C < 25 % STOT SE 3 H335: C ≥ 10 % Skin Corr. 1A H314: C ≥ 25 % Skin Irrit. 2 H315: 10 % ≤ C < 25 % Met. Corr. 1 H290: C ≥ 0.1%	01-2119484862-27-XXXX	Yes

3.2 Mixtures

- Not applicable

SECTION 4: First aid measures

4.1 Description of first aid measures

- Rescuers should put on approved personal protective equipment (PPE) before administering first aid
- Rescuers should take suitable precautions to avoid becoming casualties themselves

Contact with eyes

If substance has got into eyes, immediately wash out with plenty of water for several minutes
Irrigate eyes thoroughly whilst lifting eyelids
Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.

Contact with skin

Remove contaminated clothing immediately and drench affected skin with plenty of water
Contaminated clothing should be laundered before reuse
Get immediate medical advice/attention.

Ingestion

Rinse mouth with water (do not swallow)

SECTION 4: First aid measures (....)

Do NOT induce vomiting.
Give plenty of water to drink
Never give anything by mouth to an unconscious person
Get immediate medical advice/attention.

Inhalation

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
If unconscious, place person in recovery position
Apply artificial respiration only if patient is not breathing
Get medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

Contact with eyes

Causes redness and swelling
May cause severe damage with formation of corneal ulcers and permanent impairment of vision.

Contact with skin

Causes blistering of the skin
May cause severe burns with permanent skin damage which are slow to heal.

Ingestion

May cause burns to mouth and throat
Corrosive burns may appear around the lips
May cause perforation of the oesophagus and stomach

Inhalation

Severely irritating to respiratory system
May cause coughing
May cause delayed pulmonary oedema

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media: Not flammable. In case of fire use extinguishing media appropriate to surrounding conditions
- Unsuitable extinguishing media: High volume water jet

5.2 Special hazards arising from the substance or mixture

- Gives off irritating or toxic fumes (or gases) in a fire.
- Decomposition products may include hydrogen chloride gas
- Contact with metals may evolve flammable hydrogen gas

5.3 Advice for firefighters

- Evacuate the area and keep personnel upwind
- Collect contaminated fire extinguishing water separately. This MUST not be discharged into drains. Prevent fire extinguishing water from contaminating surface or ground water.
- Special protective equipment: Wear self-contained breathing apparatus (SCBA). Wear full protective clothing including chemical protection suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Rescuers should take suitable precautions to avoid becoming casualties themselves
- Only trained and authorised personnel should carry out emergency response
- Personal precautions for non-emergency personnel: Ensure adequate ventilation; Do not breathe dust/ fume/gas/mist/vapours/spray.; Avoid contact with skin and eyes; Wear protective clothing as per section 8; Wash thoroughly after handling.
- Personal precautions for emergency responders: Evacuate the area and keep personnel upwind; Wear self-contained breathing apparatus (SCBA); Wear suitable protective clothing, eye/face protection and gloves

6.2 Environmental precautions

- Avoid release to the environment.
- Do not allow to enter public sewers and watercourses
- If contamination of drainage systems or water courses is unavoidable, immediately inform appropriate authorities

6.3 Methods and material for containment and cleaning up

- Stop leak if safe to do so.
- Avoid formation of spray/mist/aerosols

- Small spills
  May be neutralized with lime or soda ash
  Wash to waste with plenty of water

- Large spills
  Absorb spillage in suitable inert material
  Place in sealable container
  Seal containers and label them
  Remove contaminated material to safe location for subsequent disposal
  Ventilate the area and wash spill site after material pick-up is complete
  Seek expert advice for removal and disposal of all contaminated materials and wastes

6.4 Reference to other sections

- See section(s): 7, 8 & 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Use only in well ventilated areas
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Avoid contact with skin and eyes
- Wear goggles giving complete eye protection
- Wear protective clothing as per section 8
- Contaminated clothing should be laundered before reuse
- Use good personal hygiene practices
- Do not eat, drink or smoke when using this product.
- Wash thoroughly after handling.
- Ensure eyewash stations and safety showers are nearby

7.2 Conditions for safe storage, including any incompatibilities

- Store in a demarcated bunded area
- Keep in an area equipped with acid resistant flooring.
- Store in a cool, dry well-ventilated place. Keep container tightly closed.
- Store in suitable plastic containers
- Storage containers should not be made from metal

SECTION 7: Handling and storage (....)

- Avoid freezing
- Avoid high temperatures
- Keep away from food, drink and animal feedingstuffs
- Incompatible with alkali and organic bases; lime stone, marble, dolomite, and other carbonic minerals; strong oxidants; reducing agents; sulphides; sulphites; perchlorates; peroxides; nitrates;

7.3 Specific end use(s)

- Pool / spa treatment

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

- If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
  Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit values). European Standard EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents). European Standard EN 482 (Workplace exposure. General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Hydrochloric acid ... %

(EU) OELV (long term TWA) 5 ppm 8 mg/m³
(EU) OELV (short term limit value) 10 ppm 15 mg/m³
WEL (long term) 1 ppm 2 mg/m³ (UK, gas and aerosol mists)
WEL (short term limit value) 5 ppm 8 mg/m³ (UK, gas and aerosol mists)
DNEL (inhalational) 8 mg/m³ Industry, Long Term, Local Effects
DNEL (inhalational) 15 mg/m³ Industry, Acute/Short Term, Local Effects
DNEL (inhalational) 8 mg/m³ Consumer, Long Term, Local Effects
DNEL (inhalational) 15 mg/m³ Consumer, Acute/Short Term, Local Effects

8.2 Exposure controls

- Selection and use of personal protective equipment should be based on a risk assessment of exposure potential
- Engineering controls
  Engineering controls should be provided which maintain airborne concentrations below the relevant guidelines
- Respiratory protection
  In case of insufficient ventilation, wear suitable respiratory equipment
  Where a reusable half mask respirator is required, use EN 140 mask and EN 143 particle filter, or EN 1827
  Where a full face mask respirator is required, use EN 136, with particle filter EN 143
- Eye/face protection
  Wear goggles giving complete eye protection approved to standard EN 166.
  If risk of splashing, wear face-shield approved to standard EN 166 1B39N
- Skin protection
  Wear suitable clothing providing resistance to acids
  Wear chemical resistant boots
  Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374.
  The selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Breakthrough time is dependent on the characteristics of the brand of glove used and the supplier should be consulted.

SECTION 8: Exposure controls/personal protection (....)

Glove material: Polychloroprene
Thickness: 0.5 mm
Breakthrough time: > 480 min
Reference: Supplier

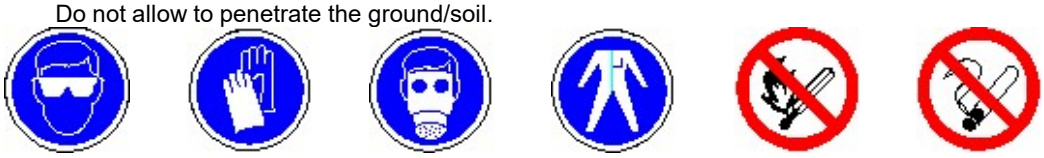
Glove material: Nitrile rubber
Thickness: 0.35 mm
Breakthrough time: > 480 min
Reference: Supplier

Glove material: Butyl rubber
Thickness: 0.5 mm
Breakthrough time: > 480 min
Reference: Supplier

Glove material: Polyvinylchloride
Thickness: 0.5 mm
Breakthrough time: > 480 min
Reference: Supplier

Glove material: Fluorinated rubber
Thickness: 0.4 mm
Breakthrough time: > 480 min
Reference: Supplier

- Thermal hazards
  Not applicable
- Hygiene measures
  Do not eat, drink or smoke when using this product.
  Use good personal hygiene practices
  Wash thoroughly after handling.
  Contaminated clothing should be laundered before reuse
  Contaminated work clothing should not be allowed out of the workplace.
  Ensure eyewash stations and safety showers are nearby
- Environmental exposure controls
  Do not empty into drains
  Do not allow to penetrate the ground/soil.



SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state: Liquid
- Colour: Colourless to light yellow
- Odour: Pungent odour
- Melting point/freezing point: -42 °C (32% solution)
- Boiling point or initial boiling point and boiling range: 80 °C (32% solution)
- Flammability: Not flammable
- Lower and upper explosion limit: Not applicable
- Flash point: Not applicable
- Auto-ignition temperature: Not applicable
- Decomposition temperature: No data available
- pH: < 1 @ 20 °C
- Kinematic viscosity: No data available
- Solubility: 500 g/L @ 20 °C
- Partition coefficient n-octanol/water (log value): Not applicable, inorganic

SECTION 9: Physical and chemical properties (....)

- Vapour pressure: 30 hPa @ 20 °C (32% solution)
- Density and/or relative density: 1.15 - 1.17 g/cm³ @ 20 °C
- Relative vapour density: No information available
- Particle characteristics: No information available

9.2 Other information

- May be corrosive to metals
- Reacts with metals liberating hydrogen

SECTION 10: Stability and reactivity

10.1 Reactivity

- No hazardous reactions known if used for its intended purpose

10.2 Chemical stability

- Stable under normal conditions

10.3 Possibility of hazardous reactions

- Reacts with metals liberating hydrogen

10.4 Conditions to avoid

- Avoid extremes of temperature
- Keep away from direct sunlight

10.5 Incompatible materials

- Incompatible with alkali and organic bases; lime stone, marble, dolomite, and other carbonic minerals; strong oxidants; reducing agents; sulphides; sulphites; perchlorates; peroxides; nitrates;

10.6 Hazardous decomposition products

- Decomposition products may include hydrogen chloride gas

SECTION 11: Toxicological information

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

- Acute Toxicity
  Based on available data, the classification criteria are not met

Substances

Chemical Name	LD_{50} (oral, rat)	LC_{50} (inhalation, rat)	LD_{50} (dermal, rabbit)
Hydrochloric acid ... %	No data available	7 051 mg/m³	No data available

- Skin corrosion/irritation
  Causes severe skin burns

Substances

Chemical Name	Irritation/corrosion
Hydrochloric acid ... %	Adverse effect observed (corrosive)

- Serious eye damage/irritation
  Causes serious eye damage.

SECTION 11: Toxicological information (....)

Substances

Chemical Name	Irritation/corrosion
Hydrochloric acid ... %	Adverse effect observed (irreversible damage)

- Respiratory or skin sensitisation
  Based on available data, the classification criteria are not met

Substances

Chemical Name	Skin sensitisation	Respiratory sensitisation
Hydrochloric acid ... %	No adverse effect observed (not sensitising)	No study available

- Germ cell mutagenicity
  No evidence of mutagenic effects

Substances

Chemical Name	Toxicity - In Vitro	Toxicity - In Vivo
Hydrochloric acid ... %	No data available	No data available

- Carcinogenicity
  No evidence of carcinogenic effects

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Hydrochloric acid ... %	No data available	15 mg/m³	No data available

- Reproductive toxicity
  No evidence of reproductive effects

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Hydrochloric acid ... %	No data available	No data available	No data available

- Specific target organ toxicity (STOT) - single exposure
  May cause respiratory irritation.

Substances

Chemical Name	Route	Remarks
Hydrochloric acid ... %	Respiratory	Adverse effect observed (irritating)

- Specific target organ toxicity (STOT) - repeated exposure
  Based on available data, the classification criteria are not met

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Hydrochloric acid ... %	No data available	15 mg/m³ local effects 30 mg/m³ systemic effects	No data available

- Aspiration hazard
  Based on available data, the classification criteria are not met
- Contact with eyes
  Causes redness and swelling

SECTION 11: Toxicological information (....)

May cause severe damage with formation of corneal ulcers and permanent impairment of vision.

- Contact with skin
  Causes blistering of the skin
  May cause severe burns with permanent skin damage which are slow to heal.
- Ingestion
  May cause burns to mouth and throat
  Corrosive burns may appear around the lips
  May cause perforation of the oesophagus and stomach
- Inhalation
  Severely irritating to respiratory system
  May cause coughing
  May cause pulmonary oedema

11.2 Information on other hazards

- Has not been identified as having endocrine disrupting properties

SECTION 12: Ecological information

12.1 Toxicity

- Based on available data, the classification criteria are not met

Substances

Chemical Name	LC_{50} (fish)	EC_{50} (aquatic invertebrates)	EC_{50} (aquatic algae)
Hydrochloric acid ... %	(24 h) 20.5 mg/L (Lepomis macrochirus)	(48 h) 0.45 mg/L (Daphnia magna)	ErC_{50} (72 h) 0.73 mg/L (Chlorella vulgaris)

12.2 Persistence and degradability

Substances

Chemical Name	Biodegradation
Hydrochloric acid ... %	Not applicable, inorganic

12.3 Bioaccumulative potential

Substances

Chemical Name	Bioconcentration Factor (BCF)	Log Kow
Hydrochloric acid ... %	Bioaccumulation is not expected	Not applicable, inorganic

12.4 Mobility in soil

Substances

Chemical Name	Adsorption/desorption
Hydrochloric acid ... %	Soluble in water Adsorption to solid soil phase is not expected

12.5 Results of PBT and vPvB assessment

- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII

12.6 Endocrine disrupting properties

- Has not been identified as having endocrine disrupting properties

12.7 Other adverse effects

SECTION 12: Ecological information (....)

- Do not empty into drains
- Do not allow to penetrate the ground/soil.
- May cause adverse effects in the aquatic environment due to low pH

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Disposal should be in accordance with local, state or national legislation
- This material and/or its container must be disposed of as hazardous waste
- Do not discharge into drains or the environment, dispose to an authorised waste collection point
- Do not reuse empty containers without commercial cleaning or reconditioning
- May be neutralized with lime or soda ash

13.2 Classification

- The waste must be identified according to the List of Wastes (2000/532/EC)
- Hazardous Property Code(s): HP 5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity; HP 8 Corrosive

SECTION 14: Transport information

14.1 UN number or ID number

- UN No.: 1789

14.2 UN proper shipping name

- Proper Shipping Name: HYDROCHLORIC ACID

14.3 Transport hazard class(es)

- Hazard Class: 8

14.4 Packing group

- Packing Group: II

14.5 Environmental hazards

- Not classified

14.6 Special precautions for user

- No information available

14.7 Maritime transport in bulk according to IMO instruments

- Not applicable

14.8 Road/Rail (ADR/RID)

- ADR UN No.: 1789
- Proper Shipping Name: HYDROCHLORIC ACID
- ADR Hazard Class: 8
- ADR Packing Group: II
- Tunnel Code: (E)

14.9 Sea (IMDG)

- IMDG UN No.: 1789

SECTION 14: Transport information (....)

- Proper Shipping Name: HYDROCHLORIC ACID
- IMDG Hazard Class: 8
- IMDG Packing Group: II

14.10 Air (ICAO/IATA)

- ICAO UN No.: 1789
- Proper Shipping Name: HYDROCHLORIC ACID
- ICAO Hazard Class: 8
- ICAO Packing Group: II

SECTION 15: Regulatory information

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

- This safety data sheet is provided in compliance with REACH Regulation (EC) No 1907/2006 (as amended by Regulation (EU) 2020/878) and UK REACH
- The GB Classification, Labelling and Packaging Regulation (GB CLP) applies in Great Britain
- Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe
- Restrictions on use according to Annex XVII to REACH Regulation: Entry 3 - Liquid substances or mixtures which are regarded as dangerous
- Seveso III Directive (2012/18/EU, Dangerous Substances in Annex I: Not applicable

15.2 Chemical safety assessment

- A REACH chemical safety assessment has been carried out

SECTION 16: Other information

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of PLASTICA'S limited knowledge and belief, accurate, and reliable as of the date of authorisation of this safety data sheet. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to be satisfied as to the suitability and completeness of such information for the product as used.

Sources of data: Information from published literature and supplier safety data sheets

Revision No. 2.0.0. Revised July 2022.
Changes made: Updated to conform to latest version of REACH

Training advice

- Workers must be informed of the presence of hazardous ingredients and trained in the proper use and handling of this product as required under applicable regulations

Text not given with phrase codes where they are used elsewhere in this safety data sheet:

- H290: May be corrosive to metals
- H314: Causes severe skin burns and eye damage
- H315: Causes skin irritation.
- H318: Causes serious eye damage
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation

Acronyms

- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstracts Service
- DNEL: Derived No-Effect Level
- EC: European Community

SECTION 16: Other information (....)

- EC_{50}: Effective Concentration, 50%
- GHS: Globally Harmonised System
- LOAEC: Lowest observed adverse effect concentration
- LOAEL: Lowest Observed Adverse Effect Level
- LC_{50}: Lethal Concentration, 50%
- LD_{50}: Lethal Dose, 50%
- NOAEC: No observed adverse effect concentration
- NOAEL: No observed adverse effect level
- OEL: Occupational Exposure Limit
- PBT: Persistent, Bioaccumulative and Toxic
- PNEC: Predicted No-Effect Concentration
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- SCL: Specific Concentration Limit
- SVHC: Substances of Very High Concern
- vPvB: very Persistent and very Bioaccumulative
- WEL: Workplace Exposure Limit

--- end of safety datasheet ---

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.