



SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag.1/50

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name	Hydrochloric acid
IUPAC name	Hydrochloric acid
Synonym	Muriatic Acid, Hydrogen chloride, aqueous
EC no (EINECS)	231-595-7
CAS*)	7647-01-0
Index no	017-002-01-X
Molecular Formula	HCl
Molecular weight	36.46
REACH Registration number	01-2119484862-27-0079
Type of substance	Inorganic mono constituent substance

*) Observation: According to section 1.1 "Name and other identifiers of the substance" of the CSR, HCl, hydrogen chloride, the gas, and HCl, the aqueous acid (hydrochloric acid), have the same CAS Registry number. See also the ECHA dissemination portal for HCl.

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

1.2.1 Relevant identified uses (see corresponding ES as attachment to this SDS):

Use in industrial- and professional settings:

- Manufacture of HCl (ES1).
- Recycling of HCl (ES1).
- Distribution of the substance loading and repacking (ES1).
- Industrial use as intermediates (ES2).
- Formulation & (re)packing (ES3).
- Use as: pH-regulator, flocculant, precipitant, neutralization agent in the production formulations like washing & cleaning products, water treatment- or laboratory chemical (Industrial setting: ES4, professional worker/public domain ES5).

Use by consumer:

- Use for water treatment; for swimming pools, as cleaning agent (e.g. sanitary cleaner or reagent in experimental kits) and in welding and soldering products (ES6).

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 2/50

1.2.2 Uses advised against

Any use involving aerosol formation, vapor release (>10 ppm) or risk of splashes to eyes / skin where workers are exposed without respiratory, eye or skin protection.

1.3. Details of the supplier of the safety data sheet

Name	S.C. OLTCHIM S.A
Address	1 Uzinei Street, 240050 Ramnicu Valcea, Romania
Phone N°	+40 250 701 200
FAX N°	+40 250 735 030
E-mail of competent person responsible for SDS in the MS or in the EU:	tehnic@oltchim.com

1.4. Emergency telephone number

European Emergency N°:	112
Emergency telephone at the company:	+40/250/738141- available 24h/day/365days
For Romania- The institution responsible with providing information in case of a health emergency is The National Institute for Public Health, Department for the International Sanitary Regulation and Toxicological Information.	Telephone: 021.318.36.06, Working hours: Monday - Friday from 8 a.m. to 3 p

2. HAZARD IDENTIFICATION

2.1. Classification of the substance

2.1.1. Classification according to Regulation (EC) 1272/2008

Classification

Skin corrosive; category 1B, H314

STOT Single Exp.3, H335

Corrosive to metals; category 1, H290



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 3/50

2.1.2. Additional information- Risk advice to man and the environment

Concentrated hydrochloric acid (fuming hydrochloric acid) forms acidic mists. Both the mist and the solution have a corrosive effect on human tissue, with the potential to damage respiratory organs, eyes, skin, and intestines. Upon mixing hydrochloric acid with common oxidizing chemicals, such as sodium hypochlorite (bleach, NaClO) or potassium permanganate (KMnO₄), the toxic gas chlorine is produced.

Environmental effects might occur on a local scale by pH effects.

2.2. Label elements

Labeling according to Regulation (EC) 1272/2008, CLP

Signal word: Danger

Hazard Pictogram Codes and Symbols:

GHS05: corrosion

GHS06: skull and crossbones



Hazard statements:

H314: Causes severe skin burns and eye damage.

H335: May cause respiratory irritation.

H290: May be corrosive to metals.

Precautionary statements

P234: Keep only in original container

P260: Do not breathe dust/fume/gas/mist/vapours/spray

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P309+P311: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 4/50

P501: Dispose of contents/container to permitted recycling or waste destruction company.

2.3 Other hazards: Based on the PBT and vPvB assessment carried out the substance is not a PBT / vPvB substance.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Identification name	CAS no	EC No.	Index no.	Concentration (%)
Hydrogen Chloride	7647-01-0	231-595-7	017-002-01-X	min.32
Water	7732-18-5	231-791-2		Balance to 100%

Impurities: No impurities relevant for classification and labelling.

4. FIRST - AID MEASURES

4.1 Description of first aid measures

General advice: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician. Show this safety data sheet to the doctor in attendance.

Following inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Following skin contact: Remove/Take off immediately all contaminated clothing.

Rinse skin with plenty of water for at least 15 minutes. **Get medical attention immediately.** Wash clothing before reuse.

Following eye contact: Rinse cautiously with water for several minutes lifting lower and upper eyelids occasionally. Remove contact lenses, if present and easy to do. Continue rinsing.

Get medical attention immediately.

Following ingestion: NEVER give anything by mouth to an unconscious or convulsive person. Do not induce vomiting. Rinse the mouth and lips with water if the person is conscious, then transfer to hospital urgently. **Get medical attention immediately.**



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 5/50

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

Symptoms: HCl is severely corrosive to the eyes, mucous membranes and exposed areas of skin

Risks: Causes severe skin burns and eye damage.

May cause respiratory irritation.

May be corrosive to metals.

4.3. Indication of immediate medical attention and special treatment needed

Treatment: Remove/Take off immediately all contaminated clothing. Rinse skin/eyes with water/shower. Move out of dangerous area.

5. FIRE - FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: All media. For small fires, use water spray, foam, carbon dioxide or dry chemical. For large fires, use water spray, fog or alcohol foam.

Unsuitable extinguishing media: none known

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting / Specific hazards arising from the chemical

Hydrochloric acid is nonflammable, has not sensibility to mechanical shock and to static discharge. Contact with metals produces hydrogen gas, which may form explosive mixtures with air. Thermal decomposition can produce poisoning chlorine. Hydrochloric acid reacts also with many organic materials with liberation of heat.

5.3 Advice for firefighters

Special protective equipment for fire-fighters: Fire fighters should wear full protective clothing and self-contained breathing apparatus with face-piece operate in positive pressure mode. Stay away from ends of tanks. Cool tanks with water spray. Do not get water inside containers.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency

Wear appropriate protective equipment. Do not touch or walk through spilled material.



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 6/50

Stop leak if it can be done without risk. Evacuate all unnecessary personnel from affected area.
Ventilate and isolate the hazard area.

6.2. Environmental precautions

Prevent from contamination the ground and the surface water by isolating the work area. Contain and recover liquid when possible. Keep closed containers and dispose according to all applicable federal state or local environment regulations.

6.3 Methods and materials for containment and cleaning up

For small spills, use vermiculite, fuller's earth or sand to absorb the liquid. Neutralize with lime stone, slaked lime or soda ash. Shovel up and place in a non-metal waste container for disposal. Neutralize spill area and wash with plenty of water. For large spills, dike spill area with soil or sandbags to contain it and to prevent it spread. Prevent liquid from entering sewers waterways; water spray can be used to knock down vapors. Remove bulk of liquid, for example with vacuum truck, for recovery or disposal. Then flush area with water and neutralize washings with lime stone, slaked lime, soda ash or caustic. If permitted, flush neutralized washing to a waste treatment plant. Dispose of all contaminants according to federal, state and local regulations. Refer to section 13 for disposal of spilled material.

6.4 Reference to other sections

Additional advice: Refer to section 8, 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling: For personal protection see section 8. The usual precautions for handling chemicals should be observed. Avoid any direct contact with the material and formations of aerosol. Do not breathe gas/fumes/ vapor/spray and avoid contact with skin and eyes. Smoking, eating and drinking should be prohibited in the application area.

Advice on protection against fire and explosion: Product is nonflammable and does not support combustion

Fire-fighting class: Non

Dust explosion class: Non



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 7/50

7.2. Conditions for safe storage, including any incompatibilities

The substance should be store in a cool, dry, ventilated area with acid resistant floors and good drainage. Keep out of direct sunlight and away from heat, water and incompatible materials. Keep the containers tightly closed.

Suitable materials for storage facilities: glass, polyethylene, polypropylene, polyvinyl chloride, carbon steel lined with rubber or ebonite.

Incompatible materials: cyananide, sulfides oxidizer agents, bases, metals, organic compounds,

Never use hot water for dilution and never add water to the acid! Water added to the acid can cause uncontrolled boiling and splashing.

7.3. Specific end use(s)

Please check the identified uses from Section 1.2.

For more information please see the relevant exposure scenario, available via your supplier/given in the Appendix.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Components with workplace control parameters

Components	CAS No.	Value	Control parameters	Form of exposure
Hydrogen chloride	7647-01-0	STEL	10 ppm 15 mg/m ³	Aerosold mist and gas
		TWA	5 ppm 8 mg/m ³	
	Further informatine	ASTEL (15 min.) and TWA (8 hours) for Hydrogene chloride are derived and are EU indicative Occupational Exposure Limits (SCOEL/SEG/SUM, 1994)		

8.1.2 DNEL/PENEC value(s)

DNEL : Acute inhalation exposure: the SCOEL recommends a STEL (15min) of 10 ppm (15 mg/m³).
long term inhalation exposure: the SCOEL recommends a TWA 8 hour of 5 ppm (8 mg/m³)



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 8/50

PNEC : PNEC aqua (marine water): 36 µg/L
PNEC aqua (freshwater): 36 µg/L
PNEC aqua (intermittent releases): 45 µg/L

8.2. Exposure control

8.2.1. Engineering controls: Use local exhaust or general dilution ventilation system to keep employee exposure as low as possible. In plant operations should employ negative pressure (vacuum) techniques to keep vapor inside processing equipment.

8.2.2. Personal Protection Equipment

Eye / Face protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Equipment for eye protection should be tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Maintain eye wash fountain and quick-drench facilities in work area.

Skin protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Wear clothing (full suit) that will protect the skin from exposure to this chemical. An additional protection including impervious boots, apron or coverall, is needed in areas of unusual exposure to prevent skin contact.

Hand protection: Handle with gloves which were inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. The selected protective gloves have to satisfy the specifications of the standard EN 374 derived from it.

Recommended material for full contact: neoprene or nitrile rubber

Minimum layer thickness: 0,4 mm

Break through time: 480 min

For splash contact recommended material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 120 min

Other materials include PVC, neoprene rubber having a break through time ≥ 290 min.

Above recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Respiratory protection: If the exposure limit is exceeded (up to 50ppm) a full face-piece



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 9/50

respirator with a chemical cartridge respirator with acid cartridge is recommended, approved according to EN 14 387 standard.

Above this level, a self-contained breathing apparatus is advised.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. When using it do not eat, drink or smoke. Wash hands before breaks and at the end of workday.

Protective measures: Plan first aid action before beginning work with this product.

Environmental Exposure Control:

General advice: Do not flush into surface or sanitary sewer system.

Air: Hose down gases, fumes and/or dust with water

Soil: Avoid subsoil penetration.

Water: Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information

Appearance clear, colorless or slightly yellow fuming liquid
Odor pungent odor

Important health, safety and environmental information

pH 1N(0.1); 0.1N(.1); 0.01N(2.021); 0.001N(3.021)
0,0001N(4.01).
Boiling point -84 °C
Flash point non applicable
Explosive properties non explosive
Oxidizing properties no oxidizing properties
Vapor pressur 19 mmHg, at 25°C
Specific density (water=1) 1.19 g/cm³
Solubility in water 823 g/l at 0°C; 721g/l at 20°C; 561 g/l at 60°C
Other solubility's soluble in alcohol, benzene and ether, insoluble in hydrocarbons
Partition coefficient (log K_{ow}) 0.25

Other information

Melting point -112°C
Autoignition temperature non applicable



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 10/50

10. STABILITY AND REACTIVITY

10.1. Reactivity: Stable under recommended storage conditions.

10.2. Chemical stability: React with strong oxidizing agents. React with alkaline substances (bases).

10.3. Possibility of hazardous reactions: The product reacts with metals with evolution of highly flammable hydrogen. The acid reacts violent with alkalis with evolution of heat. Reacts with oxidizers generate toxic chlorine gas; with cyanides or sulfides, generate toxic hydrogen cyanide or hydrogen sulphide gas.

10.4. Conditions to avoid: Heat, direct sunlight, contact with common metals, alkali metals.

10.5. Incompatible materials: Bases, Amines, Alkali metals, Metals, permanganates, e.g. potassium permanganate, fluorine, metal acetylides, hexalithium disilicide.

10.6. Hazardous decomposition products: When heated to decomposition, emits hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.

11. TOXICOLOGICAL INFORMATION

	Conclusions
Acute toxicity	Oral toxicity: No data available, data waived based on properties HCl. Dermal toxicity: No data available, data waived based on properties HCl. Inhalation toxicity: HCl gas LC50 (rat - 5 min exposure): 40989 ppm LC50 (rat - 30 min exposure): 4701 ppm HCl aerosol LC50 (rat - 5 min exposure): 45.6 mg/L equivalent to 31008 ppm LC50 (rat - 30 min exposure): 8.3 mg/L equivalent to 5666 ppm
Irritation/Corrosion	<u>Skin</u> Corrosive. Studies with results indicating corrosivity to the skin: Rabbit: 0.5 ml 37%, exposure 1 and 4 hours, occlusive/semi-occlusive. (Method:



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 11/50

	<p>OECD 404, pre-GLP) Rabbit 37% hydrochloric acid aq. (1h, 4h) caused severe damage. Rabbit 0.5 mL of 17% hydrochloric acid aq. Was applied for 4h. Not irritating (< 10% HCl solutions): Human patch test data on a 10% solution of HCl suggesting that 10% solutions of HCl should not be classified as "Irritant to the skin". OECD SIDS Hydrogen Chloride UNEP PUB US, Oct 2002 Moderately irritating: Rabbit 0.5 mL of 3.3% hydrochloric acid aq. applications for 5 days Not irritating: Rabbit 0.5 mL of 1% hydrochloric acid aq. applications for 5 days was not irritating.</p> <p><u>Eye</u> Risk of serious damage to eyes (not reversible), Corrosive based on skin corrosivity data. Corrosive: Rabbit 0.1 mL ,10%. (Method: OECD 405, not GLP) Eye corr. 1a Highly irritating: Rabbit (OECD 405) 0.1 mL of 10% hydrochloric acid aq. severe irritation with corneal injury which may result in permanent impairment of vision. – OECD SIDS Hydrogen Chloride UNEP PUB US, Oct 2002 Corrosive: Rabbit 0.03 mL or more of 5% hydrochloric acid aq. was severely irritating or corrosive. Slightly irritating: Rabbit 0.1 mL of 3.3% hydrochloric acid aq. Was applied into the conjunctival sac; 48h observation period. Not irritating: Rabbit 0.1 mL of 0.33% hydrochloric acid aq. Was applied into the conjunctival sac; 48h observation period.</p>
Sensitisation	Not sensitizing
Repeated dose toxicity	<p><u>Oral</u>: No data available from repeated dose oral studies with hydrogen chloride. <u>Dermal</u>: No data available from repeated dose oral studies with hydrogen chloride. <u>Inhalation sub-chronic</u>: NOAEC is 15 mg/m³ for rats/mice, 90-days, 6 hours/days, 5 days/week. <u>Chronic inhalation</u>: NOAEL is <10 ppm for rats/mice, 128-weeks, 6 hours/days, 5 days/week.</p>
Mutagenity	Not mutagenic



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 12/50

Carcinogenity	Not carconogenic
Toxicity for reproduction	No data available, data waived based on properties HCl

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Acute (short-term) toxicity

Fish: *Lepomis macrochirus*, freshwater, semi-static: LC₅₀: 20.5 mg/l (96h, pH 3.25 - 3.5)

Aquatic invertebrates: *Daphnia sp.*, freshwater EC₅₀/LC₅₀: 0.45 mg/L(4-hours)

Algae and aquatic plants: *Chlorella vulgaris*, freshwater: ErC₅₀ = 0.76 mg/l (72h, pH 4.7),
EC₅₀/LC₅₀: 0.73 mg/l

Chronic (long-term) toxicity

Fish: study scientifically unjustified.

Aquatic invertebrates: study scientifically unjustified.

Algae and aquatic plants: study scientifically unjustified.

Toxicity to bacteria: EC50 (3 h, freshwater, respiration rate): pH 5.0 -5.5

Inhibitory effect on respiration rates of activated sewage sludge. OECD
Guideline 209 (Activated Sludge, Respiration **Inhibition Test**).

12.2. Persistence and degradability:

Biodegradability: As the active substance, hydrochloric acid, is an inorganic compound, which is not biologically degradable, the ready biodegradability, inherent biodegradability and biodegradation in seawater are scientifically impossible to perform. In addition, the proposed use of HCl is not expected to lead to significant releases to marine water.

Degradation/ abiotic: Hydrolysis: Due to its intrinsic properties, it is scientificcally impossible to perform a hydrolysis test. In addition, since the behaviour of HCl in water is known, it is also not scientifically necessary

12.3 Bioaccumulative potential: The substance is considered cationic at environmental pH levels, the log Kow was calculated to a value of -2.65. Following the Annex VIII Guidance this value does not impose any bioaccumulation potential.



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 13/50

12.4 Mobility in soil

Mobility: Terrestrial compartment is not expected to be relevant. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, H^+ will be neutralized in the soil pore water by natural organic or inorganic matter or the pH may decrease.

12.5. Results of PBT and vPvB assessment: HCl does not fulfil all criteria to be classified as a PBT or vPvB substance

12.6 Additional ecological information: In the aquatic environment the effects of HCl are clearly related to the pH effect, as HCl will dissociate fully in H_3O^+ & Cl^- ions, of which the latter is not a harmful substance. The substance itself thus will not reach the sediment/terrestrial environment.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Code (European Waste Catalogue): 06 01 02* hydrochloric acid

Note: Also please refer to your specific industry and take into account the waste composition for establish the correct waste code.

Disposal methos: Wastes must be disposed of in compliance with national and local regulations
Do not dispose wastes into sewer. Do not contaminate ponds, waterways or ditches with chemical.

Contaminated packaging: Empty remaining contents. Contaminated packaging According to local regulations

Relevant European legislation regarding waste:

Directive 2008/98/EC on waste (Waste framework Directive)

Directive 2008/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste
Regulation (Ec) No 1013/2006 of the European Parliament and of the Council on shipments of waste, with subsequent modifications and additions



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 14/50

14. TRANSPORT INFORMATION

Hydrochloric acid solution can be shipped according to transport regulations for dangerous goods, hazard class 8, Corrosive substance.

Transport labeling



Class 8
Corrosive substances

ADR

UN number	1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	8
Packing group	II
Classification Code	C1
Hazard identification No	80
Labels	8
Tunnel restriction code	(E)
Environmentally hazardous	no

RID

UN number	1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	8
Packing group	II
Classification Code	C1
Hazard identification No	80
Labels	8
Environmentally hazardous	no

IMDG



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 15/50

UN number	1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	8
Packing group	II
Labels	8
EmS Number 1	F-A, S-B
Marine pollutant	no

IATA

UN number	1789
UN proper shipping name	Hydrochloric acid
Transport hazard class(es)	8
Packing group	II
Labels	8

15. REGULATORY INFORMATION

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

Relevant information regarding the European legislation

EU Regulation (EC) No. 1907/2006 (REACH) Regulation (EC) no.1907/2006 of the European Parliament and of the Council regarding the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation

Regulation (EC) no.1272/2008 of the European Parliament and of the Council on the Classification, Labeling and Packaging of substances and mixtures.

Directive 2012/18/EU (SEVESO III) of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC

Regulation (EC) No 1005/2009 of the European Parliament and of the Council on substances that deplete the ozone layer

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Regulation referring to the International Carriage of Dangerous Goods by Rail (RID)

International Maritime Dangerous Goods (IMDG)

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV of REACH -Authorization: Hydrochloric acid is not subject to authorization.



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 16/50

Annex XVII of REACH regulation- Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Restrictions on use: no restriction

Other EU regulations: Hydrochloric acid solution 32% is not subject to:

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer

Regulation (EC) No 850/2004 on persistent organic pollutants

Regulation (EC) No 649/2012 concerning the export and import of dangerous chemicals

Directive 2012/18/EU -SEVESO III Directive.

WGK (Germany): WGK 1 slightly water endangering

15.2 Chemical safety Assessment

Chemical Safety Assessments have been carried out for this substance and a CSR was issued.

16. OTHER INFORMATION

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

H314 : Causes severe skin burns and eye damage.

H335 : May cause respiratory irritation.

H290 : May be corrosive to metals.

16. 2. Abbreviation and acronyms (NOT ALL ARE USED IN THIS SDS)

ADR European agreement concerning the international carriage of dangerous goods by road

BSAF Bio soil accumulation factor

BCF Bio concentration factor

CAS Chemical Abstracts Service

CLP Classification, labelling and packaging

CMR Carcinogenic, mutagenic or toxic for reproduction

CSA/CSR Chemical safety assessment / Chemical safety report

DNEL Derived no effect level

EC10 Concentration of a substance where 10% of the population is affected

EC50 Concentration of a substance where 50% of the population is affected

ECHA European chemicals agency

EINECS EU list of existing chemical substances

EmS Emergency schedule

ERC Environmental release category



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 17/50

ES Exposure scenario
eSDS Extended safety data sheet
GHS Globally harmonised system
IATA-DGR International air transport association - dangerous goods regulations
ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air
IU Identified use
IUPAC International Union of Pure and Applied Chemistry
IBC code International code for the construction and equipment of ships carrying dangerous chemicals in bulk
IMDG International maritime dangerous goods
KP Partition coefficient
LC10 Lethal concentration of a substance that can be expected to cause death in 10% of the population
LC50 Lethal concentration of a substance that can be expected to cause death in 50% of the population
LD50 Lethal dose of a substance that can be expected to cause death in 50% of the population
NO(A)EC No observed (adverse) effect concentration
NO(A)EL No observed (adverse) effect level
OECD Organisation for economic co-operation and development
OEL Occupational exposure limit
PBT Persistent, bioaccumulative, and toxic
PC Product category
PNEC Predicted no-effect concentration
PROC Process category
REACH Registration, evaluation, authorisation and restriction of chemicals (i.e. Regulation (EC) No. 1907/2006)
RID International rule for transport of dangerous substances by railway
SDS Safety data sheet
STOT Specific target organ toxicant
STP Sewage treatment plant
SU Sector of end use
TWA Time weighted average
vPvB Very persistent, very bioaccumulative

16.3. Key literature references

The information provided in this eSDS is consistent with the information provided in the REACH



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 18/50

CSR. The CSR contains a complete reference list for all data used. Non confidential data from the REACH registration dossier are published by the ECHA, see <https://echa.europa.eu/information-on-chemicals/registered-substances> ; http://echa.europa.eu/clp/c_1_inventory_en.asp
<http://chelist.jrc.ec.europa.eu>
<http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp> (GESTIS chemicals database)

16.4. Revision 6 replaces revision no.5 from November 23, 2015

Chapters 2, 3, 8, 12, 15, 16 of this safety data sheet have been revised according to the provision of Regulation (EC) No. 1907/2006, as amended by Regulation 830/2015. The information provided in this SDS is consistent with the information provided in the REACH CSR for hydrochloric acid.

See below Annex I-Exposure Scenario

Disclaimer:

Oltchim provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. Furthermore, this safety data sheet is made up based on the legal requirements as set by EC 1907/2006 (REACH) and EC Regulation 830/2015



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 19/50

ANNEX I- EXPOSURE SCENARIO

1 Exposure Scenario 1 of 6:

Manufacture, Recycling and Distribution of Hydrochloric acid Eposure scenario

Worker – ES1 – Hydrochloric acid	
Section 1	Exposure Scenario Title
Title	ES1 – Manufacture of Hydrochloric acid; CAS: 7647-01-0
	Sector of Use: Industrial (SU8, SU9)
Use Descriptor	Process Category PROC1: Use in a closed process, no likelihood of exposure (<i>PROC1 is also applicable to the manufacture of HCl gas for the production of hydrochloric acid by absorption into water under SCC.</i>) PROC2: Use in a closed, continuous process with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as a laboratory reagent
	Environmental Release Categories: ERC1: Manufacture of substances ERC2: Formulation of preparations (mixtures)
Process, tasks, activities covered	Manufacture of Substance. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 20/50

ES Exposure Criteria	SCOEL: - 8 mg/m ³ - 8 hr. TWA - 15 mg/m ³ – 15 min. TWA
Section 2	Operational conditions and risk management measures
Section 2.1.	Control of worker exposure
Product characteristics :	
Physical form of product	Liquid vapour pressure 0.5-10 kPa [OC4]
Concentration of substance in product	Covers percentage substance in the product up to 40% (unless stated differently) [G13].
Amounts used	Varies between mil iliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Assumes use at not >20 °C above ambient [G15]
Other Operational Conditions affecting worker exposure	It should be noted that the process temperature may be higher, but the substance temperature is down to ambient at worker contact points. Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI119]
Contributing Scenarios	Risk Management Measures
Due to the corrosive properties of the substance, always wear suitable protective clothing, eye and skin protection	
PROC1: General exposures (closed systems) [CS15]. Continuous process[CS54].	Handle substance within a closed system [E47]. Clear transfer lines prior to de-coupling [E39]
PROC2: General exposure [CS!] Process sampling [CS2] Continuous process [CS54].	Handle substance within a closed system [E47].Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39]
PROC3: General exposures [CS1]. Remanufacture of reject articles [CS19]. Cleaning [CS47]. Use in contained batch processes [CS37]. With sample collection [CS56].	Use bulk or semi-bulk handling systems [E43]. <u>Or</u> Use drum pumps [E53]. Drain down and flush system prior to equipment break-in or maintenance[E55]. Provide extract ventilation to points where emissions occur (90% efficiency) [E54].
PROC4: Drum/batch transfers [CS8] Bulk transfers [CS14]. General exposures (open systems)[CS16]. Cleaning [CS47]. Remanufacture of reject articles[CS19].	Use bulk or semi-bulk handling systems [E43]. <u>Or</u> Use drum pumps [E53]. Drain down and flush system prior to equipment break-in or maintenance [E55].



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 21/50

With sample collection [CS56].	Provide extract ventilation to points where emissions occur (90% efficiency)[E54].
PROC8a: Bulk transfers [CS14]. Process sampling [CS2]. Drum/batch transfers [CS8]. General exposures (open systems)[CS16]. Equipment cleaning and maintenance[CS39] Transport [CS58]. Internal [CS59]	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. Or Provide extract ventilation to points where emissions occur (90% efficiency) [E54]
PROC8b: Bulk transfers [CS14]. Process sampling [CS2]. Equipment cleaning and maintenance [CS39]. Transport [CS58]. Internal [CS59]. Drum/batch transfers [CS8] General exposures (open systems)[CS16].	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. Or Provide extract ventilation to points where emissions occur (90% efficiency) [E54]
PROC9: Drum and small package filling [CS6]. Drum/batch transfers [CS8]. Equipment cleaning and maintenance [CS39].	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. Fill containers/cans at dedicated fill points supplied with local extract ventilation (90% efficiency) [E51]
PROC15: Laboratory activities [CS36].	Handle in a fume cupboard or under extract ventilation (80% efficiency)[E83]. Or Carry out in a vented booth or extracted enclosure (80% efficiency) [E57] Avoid carrying out operation for more than 4 hours [OC12]
Or: PROC15: Laboratory activities [CS36]	Avoid carrying out operation for more than 1 hour [OC11]
Section 2.2. Control of environmental exposure	
Product characteristics :	Liquid vapour pressure 0.5-10 kPa [OC4]
Amount used	NR
Frequency and duration of use	360 days per year
Other Operational Conditions of use affecting environmental exposure	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases [W2]



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 22/50

	Prevent leaks and prevent soil / water pollution caused by leaks [S4].
Organizational measures to prevent/limit release from site	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic released. [W2]
Conditions and measures related to municipal sewage treatment plant	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external treatment of waste for disposal	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external recovery of waste	NR
Other environmental control measures additional to above	NR
Section 3	Exposure Estimation
3.1. Healt	
PROC1: Safe use for exposures >4 hours is safe, also without the use of LEV or personal breathing protection. PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: Exposure safe for >4 hrs, provided that LEV (90% efficiency) is used. PROC15: exposures during 15 min-1 hr are safe, also without the use of LEV; For exposures >1 hr, LEV (80% efficiency) must be used.	
3.2. Enviromental	
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.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Worker exposure has been evaluated using ECETOC TRA V2.0	
4.1.1. Health – Uses advised against	
- Any use involving aerosol formation or vapor release in excess of 10 ppm where workers are exposed without respiratory protection - Any use carrying a risk of splashes to eyes / skin where workers are exposed without eye / skin protection	
4.2. Enviroment	
4.2.1. Enviroment – Uses advised against	
Any uses involving direct releases to air / surface water that cannot be buffered by natural systems to	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 23/50

maintain pH at the naturally occurring level.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	
Process sampling [CS2].	Wear suitable gloves tested to EN374 [PPE15]
Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance [E55]. Clear spills immediately [C&H13].
Control of environmental exposure	
Equipment cleaning and maintenance [CS39]	Retain drain downs in sealed storage pending disposal or for subsequent recycle [ENVT4].

Exposure estimation

1. Workers exposure

Worker exposure for this scenario has been assessed using ECETOC TRA V2.0. In Chapter 10 the relationships between the Operational Conditions and safe uses (RCRs (inhalation) <1) are given.

In Section 3.1 of the scenario above, the Safe Uses, and conditions under which, are given.

2. Consumer exposure

Nonrelevant

3. Indirect exposure of humans via the environment

Nonrelevant

Exposure Scenario 2 of 6: Use as Intermediate by Industry

Exposure scenario



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 24/50

Worker – ES2 – Hydrochloric acid	
Section 1	Exposure Scenario Title
Title	ES – Industrial use of Hydrochloric acid as Intermediate; CAS: 7647-01-0
Use Descriptor	Sector of Use: Industrial (SU3, SU4, SU8, SU9, SU11, SU12, SU13, SU19)
	Process Category PROC1: Use in a closed process, no likelihood of exposure <i>(PROC1 is also applicable to the manufacture of HCl gas for the production of hydrochloric acid by absorption into water under SCC.)</i> PROC2: Use in a closed, continuous process with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation) 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 a laboratory reagent PROC15: Use as a laboratory reagent
	Environmental Release Categories: ERC6A: Industrial use, resulting in manufacture of another substance (use of intermediates)
Process, tasks, activities covered	Use as Intermediate by Industry; -Sampling -Material transfers
ES Exposure Criteria	SCOEL: - 8 mg/m ³ - 8 hr. TWA - 15 mg/m ³ – 15 min. TWA
Section 2 Operational conditions and risk management measures	
Section 2.1. Control of worker exposure	
Product characteristics :	
Physical form of product	Liquid vapour pressure 0.5-10 kPa [OC4]



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 25/50

Concentration of substance in product	Covers percentage substance in the product up to 40% (unless stated differently) [G13].
Amounts used	Varies between mil iliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; It should be noted that the process temperature may be higher, but the substance temperature is down to ambient at worker contact points. Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI119]
Contributing Scenarios	Risk Management Measures
Due to the corrosive properties of the substance, always wear suitable protective clothing, eye and skin protection	
PROC1: General exposures (closed systems) [CS15]. Continuous process[CS54].	Handle substance within a closed system [E47]. Clear transfer lines prior to de-coupling [E39]
PROC2: General exposure [CS!] Process sampling [CS2] Continuous process [CS54].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39]
PROC4: Drum/batch transfers [CS8] Bulk transfers [CS14]. General exposures (open systems)[CS16]. Cleaning [CS47]. Remanufacture of reject articles[CS19]. With sample collection [CS56].	Use bulk or semi-bulk handling systems [E43]. <u>Or</u> Use drum pumps [E53]. Drain down and flush system prior to equipment break-in or maintenance [E55]. Provide extract ventilation to points where emissions occur (90% efficiency)[E54].
PROC9: Drum and small package filling [CS6]. Drum/batch transfers [CS8]. Equipment cleaning and maintenance [CS39].	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. <u>or</u> Fill containers/cans at dedicated fill points supplied with local extract ventilation [E51].



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 26/50

<p>PROC15: Laboratory activities [CS36].</p> <p>Or:</p> <p>PROC15: Laboratory activities [CS36]</p>	<p>Handle in a fume cupboard or under extract ventilation (80% efficiency)[E83]. Or Carry out in a vented booth or extracted enclosure (80% efficiency) [E57] Avoid carrying out operation for more than 4 hours [OC12]</p> <p>Avoid carrying out operation for more than 1 hour [OC11]</p>
Section 2.2. Control of environmental exposure	
Product characteristics :	Liquid vapour pressure 0.5-10 kPa [OC4]
Amount used	NR
Frequency and duration of use	360 days per year
Other Operational Conditions of use affecting environmental exposure	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases [W2] Prevent leaks and prevent soil / water pollution caused by leaks[S4].
Organizational measures to prevent/limit release from site	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic released. [W2]
Conditions and measures related to municipal sewage treatment plant	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external treatment of waste for disposal	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external recovery of waste	NR
Other environmental control measures additional to above	NR
Section 3 Exposure Estimation	
3.1. Heat	
<p>PROC1: Safe use for exposures >4 hours is safe, also without the use of LEV or breathing equipment PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: Exposure safe for >4 hrs, provided that LEV (90% efficiency) is used.</p>	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 27/50

PROC15: exposures during 15 min-1 hr are safe, also without the use of LEV; For exposures >1 hr, LEV (80% efficiency) must be used.	
3.2. Environmental	
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.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Worker exposure has been evaluated using ECETOC TRA V2.0	
4.1.1. Health – Uses advised against	
- Any use involving aerosol formation or vapor release in excess of 10 ppm where workers are exposed without respiratory protection - Any use carrying a risk of splashes to eyes / skin where workers are exposed without eye / skin protection	
4.2. Environment	
4.2.1.Environment – Uses advised against	
Any uses involving direct releases to air / surface water that cannot be buffered by natural systems to maintain pH at the naturally occurring level.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	
Process sampling [CS2].	Wear suitable gloves tested to EN374 [PPE15]
Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance [E55]. Clear spills immediately [C&H13].
Control of environmental exposure	
<i>Selection of relevant RMM Core Phrases</i>	<i>Good practice RMM phrases may be incorporated in this section or consolidated into the main sections of the SDS, depending on the preference of the Registrant and functionality of the available e-SDS system.</i>

Exposure estimation



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 28/50

1. Workers exposure

Worker exposure for this scenario has been assessed using ECETOC TRA V2.0. In Chapter 10 the relationships between the Operational Conditions and safe uses (RCRs (inhalation) <1) are given.

In Section 3.1 of the scenario above, the Safe Uses, and conditions under which, are given.

2. Consumer exposure

Nonrelevant

3. Indirect exposure of humans via the environment

Nonrelevant

Exposure Scenario 3 of 6: Formulation and (re-)packing of Hydrochloric acid and its formulations by Industry and by Professionals

Worker – ES3 – Hydrochloric acid	
Section 1	Exposure Scenario Title
Title	ES3 – Formulation and (re-)packing of Hydrochloric acid and its formulations by Industry and by Professionals CAS: 7647-01-0



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 29/50

Use Descriptor	Sector of Use: SU10
	Process Category PROC1: Use in a closed process, no likelihood of exposure <i>(PROC1 is also applicable to the manufacture of HCl gas for the production of hydrochloric acid by absorption into water under SCC.)</i> PROC2: Use in a closed, continuous process with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	Environmental Release Categories: ERC2: Formulation of preparations (mixtures)
Process, tasks, activities covered	Formulation, blending, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.
ES Exposure Criteria	SCOEL: - 8 mg/m ³ - 8 hr. TWA - 15 mg/m ³ - 15 min. TWA
Section 2	Operational conditions and risk management measures
Section 2.1.	Control of worker exposure
Product characteristics :	
Physical form of product	Liquid vapour pressure 0.5-10 kPa [OC4] for 40% HCl For activities under PROC5 : Liquid, <i>partial vapour pressures</i> (cf. ELECNRTL in



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 30/50

	Aspenplus (vs 2004.1)) : 20 °C : 22.1 Pa 30 °C : 51 Pa 40 °C : 112 Pa
Concentration of substance in product	Covers percentage substance in the product up to 40% (unless stated differently) [G13].
Amounts used	Varies between mil iliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Other Operational Conditions affecting worker exposure	Some operations are carried out at elevated temperature (> 20°C above ambient temperature) [OC7].; Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI119]
Risk Management Measures [GT7]	
Due to the corrosive properties of the substance, always wear suitable protective clothing, eye and skin protection	
PROC1: General exposures (closed systems) [CS15]. Continuous process [CS54].	Handle substance within a closed system [E47]. Clear transfer lines prior to de-coupling [E39]
PROC2: General exposure [CS!] Process sampling [CS2] Continuous process [CS54].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39]
PROC4: Drum/batch transfers [CS8] Bulk transfers [CS14]. General exposures (open systems) [CS16]. Cleaning [CS47]. Remanufacture of reject articles [CS19]. With sample collection [CS56].	Use bulk or semi-bulk handling systems [E43]. <u>Or</u> Use drum pumps [E53]. Drain down and flush system prior to equipment break-in or maintenance [E55]. Provide extract ventilation to points where emissions occur (90% efficiency) [E54].
PROC5: Drum/batch transfers [CS8]. Bulk transfers [CS14].	Transfer materials directly to mixing vessels [E45]. Use drum pumps [E53].



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 31/50

General exposures (open systems) [CS16]. Mixing operations (open systems) [CS30]. Cleaning [CS47].	If not available and pouring from container is necessary, use extra safeguards: spill containment, splash protection for skin and eyes, use respirator to prevent inhalation of vapors/ aerosols. Drain down and flush system prior to equipment break-in or maintenance[E55].
PROC8a: Bulk transfers [CS14]. Process sampling [CS2]. Drum/batch transfers [CS8]. General exposures (open systems)[CS16]. Equipment cleaning and maintenance[CS39] Transport [CS58]. Internal [CS59]	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. <u>Or</u> Provide extract ventilation to points where emissions occur (90% efficiency)[E54]
PROC8b: Bulk transfers [CS14]. Process sampling [CS2]. Equipment cleaning and maintenance [CS39]. Transport [CS58]. Internal [CS59]. Drum/batch transfers [CS8] General exposures (open systems)[CS16].	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. <u>Or</u> Provide extract ventilation to points where emissions occur (90% efficiency) [E54]
PROC9: Drum and small package filling [CS6]. Drum/batch transfers [CS8]. Equipment cleaning and maintenance [CS39].	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. <u>or</u> Fill containers/cans at dedicated fill points supplied with local extract ventilation [E51].
Section 2.2. Control of environmental exposure	
Product characteristics :	Liquid vapour pressure 0.5-10 kPa [OC4]
Amount used	NR
Frequency and duration of use	360 days per year
Other Operational Conditions of use affecting environmental exposure	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases [W2] Prevent leaks and prevent soil / water pollution caused by



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 32/50

	leaks[S4].
Organizational measures to prevent/limit release from site	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic released. [W2]
Conditions and measures related to municipal sewage treatment plant	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external treatment of waste for disposal	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external recovery of waste	NR
Other environmental control measures additional to above	NR
Section 3	Exposure Estimation
3.1. Health	
PROC1: Safe use for exposures >4 hours is safe, also without the use of LEV or without breathing equipment PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9: safe use for activities >4 hrs, provided that LEV (90% efficiency) is used. PROC15: uses are safe for activities >4 hrs, at operating temperatures of 20, 30 or 40 °C, without the use of LEV or breathing protection	
3.2. Environmental	
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.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Worker exposure has been evaluated using ECETOC TRA V2.0	
4.2. 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.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	
Process sampling [CS2].	Wear suitable gloves tested to EN374 [PPE15]



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 33/50

Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance [E55]. Clear spills immediately [C&H13].
Control of environmental exposure	
<i>Selection of relevant RMM Core Phrases</i>	<i>Good practice RMM phrases may be incorporated in this section or consolidated into the main sections of the SDS, depending on the preference of the Registrant and functionality of the available e-SDS system.</i>

Exposure estimation

1. Workers exposure

Worker exposure for this scenario has been assessed using ECETOC TRA V2.0. In Chapter 10 the relationships between the Operational Conditions and safe uses (RCRs (inhalation) <1) are given.

In Section 3.1 of the scenario above, the Safe Uses, and conditions under which, are given.

2. Consumer exposure

Nonrelevant

3. Indirect exposure of humans via the environment

Nonrelevant

Exposure Scenario 4 of 6: Industrial use of Hydrochloric acid and formulations

Worker – ES4 – Hydrochloric acid	
Section 1	Exposure Scenario Title
Title	ES4 – Industrial use of Hydrochloric acid and Formulations; CAS: 7647-01-0
Use Descriptor	Sector of Use: Industrial (SU2a, SU2b, SU3, SU5, SU14, SU15, SU16)



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 34/50

	<p>Process Category</p> <p>PROC1: Use in a closed process, no likelihood of exposure</p> <p>PROC2: Use in a closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in a closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC15: Use as a laboratory reagent</p> <p>PROC19: Hand-mixing with intimate contact and only PPE available</p>
	<p>Environmental Release Categories:</p> <p>ERC4: Industrial use of processing aids in processes and products, not becoming part of articles</p> <p>ERC6b: Industrial use of reactive processing aids</p>
Process, tasks, activities covered	Use of HCl & its Formulations by Industry
ES Exposure Criteria	SCOEL: - 8 mg/m ³ - 8 hr. TWA - 15 mg/m ³ - 15 min. TWA
Section 2	Operational conditions and risk management measures
Section 2.1.	Control of worker exposure
Product characteristics :	
Physical form of product	Liquid vapour pressure 0.5-10 kPa [OC4] PROC13: Partial vapor pressures over the bath with a 15% HCl solution are : T °C pHCl Pa 20 1.89 30 4.93 40 12.2 50 28.6 60 64.5



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 35/50

	70 139 80 290 90 584 100 1140 (Cf. ELECNRTL in Aspenplus (vs. 2004.1))
Concentration of substance in product	Covers percentage substance in the product up to 40% (unless stated differently) [G13].
Amounts used	Varies between mil iliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [E119] Under PROC13, operating temperatures may differ from 20 – 30 –40 – 50 – 60 – 70 – 80 – 90 – 100 °C
Contributing Scenarios	Risk Management Measures
Due to the corrosive properties of the substance, always wear suitable protective clothing, eye and skin protection	
PROC1: General exposures (closed systems) [CS15]. Continuous process[CS54].	Handle substance within a closed system [E47]. Clear transfer lines prior tode-coupling [E39]
PROC2: General exposure [CS!] Process sampling [CS2] Continuous process [CS54].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39]
PROC3: General exposures [CS1]. Remanufacture of reject articles [CS19]. Cleaning [CS47]. Use in contained batch processes [CS37]. With sample col ection [CS56].	Handle substance within a closed system [E47]. Drain down and flush system prior to equipment break-in or maintenance[E55]. Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39] Wear suitable gloves tested to EN374 [PPE15].
PROC4: Drum/batch transfers [CS8] Bulk transfers [CS14].	Use bulk or semi-bulk handling systems [E43]. <u>Or</u> Use drum pumps [E53].



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 36/50

<p>General exposures (open systems)[CS16]. Cleaning [CS47]. Remanufacture of reject articles[CS19].</p> <p>With sample collection [CS56].</p>	<p>Drain down and flush system prior to equipment break-in or maintenance [E55]. Provide extract ventilation to points where emissions occur (90% efficiency)[E54].</p>
<p>PROC9: Drum and small package filling [CS6]. Drum/batch transfers [CS8]. Equipment cleaning and maintenance [CS39].</p>	<p>Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. <u>or</u> Fill containers/cans at dedicated fill points supplied with local extract ventilation [E51].</p>
<p>PROC10: Rolling, Brushing [CS51]. Equipment cleaning and maintenance [CS39].</p>	<p>Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour) (90% efficiency) [E40]. Wear suitable gloves (tested to EN374) [PPE15]</p>
<p>PROC13: Dipping, immersion and pouring [CS4]. Treatment by dipping and pouring [CS35].</p>	<p>Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82] Carry out in a vented booth provided with laminar airflow [E59]. Automate activity where possible [AP16]. Allow time for product to drain from workpiece [EI21]. Wear suitable gloves (tested to EN374) [PPE15].</p>
<p>PROC15: Laboratory activities [CS36].</p> <p>Or:</p> <p>PROC15: Laboratory activities [CS36]</p>	<p>Handle in a fume cupboard or under extract ventilation (80% efficiency)[E83]. <u>Or</u> Carry out in a vented booth or extracted enclosure (80% efficiency) [E57] Avoid carrying out operation for more than 4 hours [OC12]</p> <p>Avoid carrying out operation for more than 1 hour [OC11]</p>
<p>PROC19: Mixing operations (open systems) [CS30]. Additive premixing [CS92]</p>	<p>Wear suitable gloves tested to EN374 [PPE15]. Wear a respirator conforming to EN140 Type A filter or better [PPE22] Wear suitable gloves tested to EN374 [PPE15]. Avoid carrying out operation for more than 15 minutes [OC10]</p>
<p>Section 2.2. Control of environmental exposure</p>	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 37/50

Product characteristics :	Liquid vapour pressure 0.5-10 kPa [OC4]
Amount used	NR
Frequency and duration of use	360 days per year
Other Operational Conditions of use affecting environmental exposure	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases [W2] Prevent leaks and prevent soil / water pollution caused by leaks[S4].
Organizational measures to prevent/limit release from site	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic released. [W2]
Conditions and measures related to municipal sewage treatment plant	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external treatment of waste for disposal	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external recovery of waste	NR
Other environmental control measures additional to above	NR
Section 3	Exposure Estimation
3.1. Healt	
PROC1: Safe use for activities >4 hrs, also without LEV or breathing protection. PROC2, PROC3, PROC4, PROC9, PROC10: Safe use for activities >4 hrs, provided that LEV (90% efficiency) is used. PROC13: Safe use at all temperatures as mentioned above (2.1) provided that LEV (90% efficiency) is used. PROC15: Safe use for 1`5 min. – 1 hrs; if used >1 hr, LEV (80% efficiency) must be used. PROC19: safe use for >4 hrs: provided that breathing equipment (half mask) is used; or limit exposure to <15 min.	
3.2. Enviromental	
Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 38/50

through the STP exposure is considered negligible and with no risk.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
Worker exposure has been evaluated using ECETOC TRA V2.0	
4.1.1. Health – Uses advised against	
- Any use involving aerosol formation or vapor release in excess of 10 ppm where workers are exposed without respiratory protection - Any use carrying a risk of splashes to eyes / skin where workers are exposed without eye / skin protection	
4.2. Environment	
4.2.1.Environment – Uses advised against	
Any uses involving direct releases to air / surface water that cannot be buffered by natural systems to maintain pH at the naturally occurring level.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	
Process sampling [CS2].	Wear suitable gloves tested to EN374 [PPE15]
Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance [E55]. Clear spills immediately [C&H13].
Control of environmental exposure	
<i>Selection of relevant RMM Core Phrases</i>	<i>Good practice RMM phrases may be incorporated in this section or consolidated into the main sections of the SDS, depending on the preference of the Registrant and functionality of the available e-SDS system.</i>

Exposure estimation

1. Workers exposure

Worker exposure for this scenario has been assessed using ECETOC TRA V2.0. In Chapter 10 the relationships between the Operational Conditions and safe uses (RCRs (inhalation) <1) are given.



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 39/50

In Section 3.1 of the scenario above, the Safe Uses, and conditions under which, are given.

2. Consumer exposure

Nonrelevant

3. Indirect exposure of humans via the environment

Nonrelevant

Exposure Scenario 5 of 6: Professional use of Hydrochloric acid and Formularions

Exposure Scenario

Worker – ES4 – Hydrochloric acid	
Section 1	Exposure Scenario Title
Title	ES5 – Professional use of Hydrochloric acid and Formularions; CAS: 7647-01-0
Use Descriptor	Sector of Use: Industrial (SU20, SU222, SU23)



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 40/50

	<p>Process Categories: PROC1: Use in a closed process, no likelihood of exposure PROC2: Use in a closed, continuous process with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as a laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available</p>
	<p>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 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</p>
Process, tasks, activities covered	Professional Use of Hydrochloric acid and Formulations
ES Exposure Criteria	SCOEL: - 8 mg/m ³ - 8 hr. TWA - 15 mg/m ³ – 15 min. TWA
Section 2	Operational conditions and risk management measures
Section 2.1.	Control of worker exposure
Product characteristics :	
Physical form of product	Liquid vapour pressure 0.5-10 kPa [OC4]



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 41/50

	<p>PROC13: Partial vapor pressures over the bath with a 15% HCl solution are :</p> <table style="margin-left: 20px;"> <tr> <td>T °C</td> <td>pHCl</td> <td>Pa</td> </tr> <tr> <td>20</td> <td>1.89</td> <td></td> </tr> <tr> <td>30</td> <td>4.93</td> <td></td> </tr> <tr> <td>40</td> <td>12.2</td> <td></td> </tr> <tr> <td>50</td> <td>28.6</td> <td></td> </tr> <tr> <td>60</td> <td>64.5</td> <td></td> </tr> <tr> <td>70</td> <td>139</td> <td></td> </tr> <tr> <td>80</td> <td>290</td> <td></td> </tr> <tr> <td>90</td> <td>584</td> <td></td> </tr> <tr> <td>100</td> <td>1140</td> <td></td> </tr> </table> <p>(Cf. ELECNRTL in Aspenplus (vs. 2004.1))</p>	T °C	pHCl	Pa	20	1.89		30	4.93		40	12.2		50	28.6		60	64.5		70	139		80	290		90	584		100	1140	
T °C	pHCl	Pa																													
20	1.89																														
30	4.93																														
40	12.2																														
50	28.6																														
60	64.5																														
70	139																														
80	290																														
90	584																														
100	1140																														
Concentration of substance in product	Covers percentage substance in the product up to 40% (unless stated differently) [G13].																														
Amounts used	Varies between mil iliters (sampling) and cubic meters (material transfers) [OC13]																														
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]																														
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [E119]																														
Contributing Scenarios	Risk Management Measures																														
Due to the corrosive properties of the substance, always wear suitable protective clothing, eye and skin protection																															
PROC1: General exposures (closed systems) [CS15]. Continuous process[CS54].	Handle substance within a closed system [E47]. Clear transfer lines prior tode-coupling [E39]																														
PROC2: General exposure [CS!] Process sampling [CS2] Continuous process [CS54].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39]																														
PROC3: General exposures [CS1]. Remanufacture of reject articles [CS19].	Handle substance within a closed system [E47]. Drain down and flush system prior to equipment break-in or maintenance[E55].																														



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 42/50

Cleaning [CS47]. Use in contained batch processes [CS37]. With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Clear transfer lines prior to decoupling [E39] Wear suitable gloves tested to EN374 [PPE15].
PROC4: Drum/batch transfers [CS8] Bulk transfers [CS14]. General exposures (open systems)[CS16]. Cleaning [CS47]. Remanufacture of reject articles[CS19]. With sample collection [CS56].	Use bulk or semi-bulk handling systems [E43]. <u>Or</u> Use drum pumps [E53]. Drain down and flush system prior to equipment break-in or maintenance [E55]. Provide extract ventilation to points where emissions occur (90% efficiency)[E54].
PROC8a: Bulk transfers [CS14]. Process sampling [CS2]. Drum/batch transfers [CS8]. General exposures (open systems) [CS16]. Equipment cleaning and maintenance [CS39] Transport [CS58]. Internal [CS59].	Handle substance within a predominantly closed system provided with extract ventilation (90% efficiency) [E49]. <u>Or</u> Provide extract ventilation to points where emissions occur (90% efficiency) [E54].
PROC10: Rolling, Brushing [CS51]. Equipment cleaning and maintenance [CS39].	Provide a good standard of general or controlled ventilation (5 to 15air changes per hour) (90% efficiency) [E40]. Wear suitable gloves (tested to EN374) [PPE15]
PROC11: Spraying/fogging by manual application [CS24]. Spraying/fogging by machine application [CS25]. Spray Bottle [CS49]. Or:	Provide extract ventilation to points where emissions occur (90% efficiency) [E54]. <u>and</u> Wear a respirator conforming to EN140 with Type A filter or better. [PPE22] Provide extract ventilation to points where emissions occur (90% efficiency) [E54]. Avoid carrying out operation for more than 15 minutes [OC10]
PROC13: Dipping, immersion and pouring [CS4].	Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82]



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 43/50

Treatment by dipping and pouring [CS35].	Carry out in a vented booth provided with laminar airflow [E59]. Automate activity where possible [AP16]. Allow time for product to drain from workpiece [EI21]. Wear suitable gloves (tested to EN374) [PPE15].
PROC15: Laboratory activities [CS36].	Handle in a fume cupboard or under extract ventilation (80% efficiency)[E83]. <u>Or</u> Carry out in a vented booth or extracted enclosure (80% efficiency) [E57] Avoid carrying out operation for more than 4 hours [OC12]
Or: PROC15: Laboratory activities [CS36]	Avoid carrying out operation for more than 1 hour [OC11]
PROC19: Mixing operations (open systems) [CS30]. Additive premixing [CS92] Or:	Wear suitable gloves tested to EN374 [PPE15]. Wear a respirator conforming to EN140 Type A filter or better [PPE22] Wear suitable gloves tested to EN374 [PPE15]. Avoid carrying out operation for more than 15 minutes [OC10]
Section 2.2. Control of environmental exposure	
Product characteristics :	Liquid vapour pressure 0.5-10 kPa [OC4] PROC13: Partial vapor pressures over the bath with a 15% HCl solution are : T °C p _{HCl} Pa 20 1.89 30 4.93 40 12.2 50 28.6 60 64.5 70 139 80 290 90 584 100 1140 (Cf. ELECNRTL in Aspenplus (vs. 2004.1))
Amount used	NR
Frequency and duration of use	8h/d for 360 days per year



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 44/50

Other Operational Conditions of use affecting environmental exposure	Ensure all waste water is collected and treated via a WWTP [W6]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Ensure all waste water is collected and treated via a WWTP [W6]
Organizational measures to prevent/limit release from site	Prevent leaks and prevent soil / water pollution caused by leaks [S4]
Conditions and measures related to municipal sewage treatment plant	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external treatment of waste for disposal	NR
Conditions and measures related to external recovery of waste	NR
Other environmental control measures additional to above	NR
Section 3	Exposure Estimation
3.1. Health	
<p>PROC1: Safe use for activities >4 hrs, without the use of LEV or without breathing protection.</p> <p>PROC2, PROC3, PROC4, PROC8a, PROC10, PROC19: Safe uses for activities >4 hrs, provided that LEV(90% efficiency) is used.</p> <p>PROC11: Safe use for activities >4 hrs. ONLY if LEV (90% efficiency) plus breathing equipment (half mask) is used; or limit exposure to <15 min., plus use LEV (90% efficiency).</p> <p>PROC13: Safe use at all temperatures as mentioned above (2.1) provided that LEV (90% efficiency) is used.</p> <p>PROC15: Safe use for activities 15 min – 1 hr, also without LEV; For activities >1 hr, LEV (80% efficiency) must be used.</p> <p>PROC19: safe use for >4 hrs: provided that breathing equipment (half mask) is used; or limit exposure to <15 min.</p>	
3.2. Environmental	
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.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 45/50

Worker exposure has been evaluated using ECETOC TRA V2.0	
4.2. 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.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	
Process sampling [CS2].	Wear suitable gloves tested to EN374 [PPE15]
Equipment cleaning and maintenance [CS39]	Drain down and flush system prior to equipment break-in or maintenance [E55]. Clear spills immediately [C&H13].
Control of environmental exposure	
<i>Selection of relevant RMM Core Phrases</i>	<i>Good practice RMM phrases may be incorporated in this section or consolidated into the main sections of the SDS, depending on the preference of the Registrant and functionality of the available e-SDS system.</i>

Exposure estimation

1. Workers exposure

Worker exposure for this scenario has been assessed using ECETOC TRA V2.0. In Chapter 10 the relationships between the Operational Conditions and safe uses (RCRs (inhalation) <1) are given.

In Section 3.1 of the scenario above, the Safe Uses, and conditions under which, are given.

2. Consumer exposure

Nonrelevant

3. Indirect exposure of humans via the environment

Nonrelevant



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 46/50

Exposure Scenario 6 of 6: Use of Hydrochloric acid and Formulations by Consumers

Exposure Scenario

Worker – ES6 – Hydrochloric acid	
Section 1	Exposure Scenario Title
Title	ES6 – Use of Hydrochloric acid and Formulations by Consumers; CAS: 7647-01-0
Use Descriptor	Sector of Use: Consumer Uses: Private Households (SU21) Process Categories: (PROC) N.A



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 47/50

	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
	Product categories: PC20: Products such as ph-regulators, flocculants, precipitants, neutralization agents PC21: Laboratory chemicals PC35: Washing and cleaning products (including solvent based products) PC37: Water treatment chemicals PC38: Welding and soldering products
Process, tasks, activities covered	Use of HCl solution at a maximum concentration of 20% for purposes as mentioned under the PCs above
Section 2	Operational conditions and risk management measures
Section 2.1.	Control of worker exposure
Product characteristics :	
Physical form of product	Liquid vapour pressure 0.5-10 kPa [OC4]
Concentration of substance in product	Covers percentage substance in the product up to 40% (unless stated differently) [G13].
Amounts used	Max. 500 ml per activity
Frequency and duration of use	Covers daily exposures up to 4 hours (unless stated differently) [G2]; up to 5 times/year
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15];
Risk Management Measures related to Consumer uses	
The substance may cause local irritating effects; no systemic effects. For that reason: always use protective gloves during the handling and application activities mentioned under the Product Categories	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 48/50

above.	
Section 2.2. Control of environmental exposure	
Product characteristics :	Liquid vapour pressure 0.5-10 kPa [OC4]
Amount used	NR
Frequency and duration of use	360 days per year
Other Operational Conditions of use affecting environmental exposure	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases [W2] Prevent leaks and prevent soil / water pollution caused by leaks [S4]
Organizational measures to prevent/limit release from site	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases [W2]
Conditions and measures related to municipal sewage treatment plant	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external treatment of waste for disposal	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments [W1]
Conditions and measures related to external recovery of waste	NR
Other environmental control measures additional to above	NR
Section 3 Exposure Estimation	
3.1. Healt	
Exposures have not been estimated as the substance only causes local dermal and/or inhalatory effects and no systemic effects. However, one worst case application has been calculated. Assuming the following application conditions: <ul style="list-style-type: none">- use for removal of cement rests from bricks, tiles, etc.- use of a 20% HCl solution in water- duration 8 hrs.- room volume 50 m³- ventilation rate 2x/hr Results:	



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 49/50

Inhalation – mean event concentration: 15 mg/m³

Inhalation – mean concentration on day of exposure: 5 mg/m³

Inhalation – year average: 0.03 mg/m³/day

This inhalatory uptake is very unlikely to happen, as the substance will immediately start to irritate when it enters the inhalatory tract.

Dermal – load: 465 mg/cm²

Dermal – acute (internal) dose: 0.016 mg/kg

Dermal – chronic (internal) dose: 0.00008 mg/kg/day

Such an unrealistic high dermal load is unlikely, but assuming that it occurs the user will have reacted on the burning/itching skin sensation and will automatically start using gloves.

3.2. Environmental

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.

Section 4

Guidance to check compliance with the Exposure Scenario

4.1. Health

Worker exposure has been evaluated using ECETOC TRA V2.0

4.2. 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.

Exposure estimation

1 Workers exposure

Not relevant

2 Consumer exposures

Exposures have not been estimated as the substance only causes local dermal and/or inhalatory effects and nosystemic effects.

Inhalatory uptake is very unlikely to happen, as the substance will immediately start to irritate when it enters theinhalatory tract.

Dermal load is unlikely, but assuming that it would occur, the user will have reacted on the burning/itching skinsensation and will automatically start using gloves.

3 Indirect exposures of humans via the environment



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011

SAFETY DATA SHEET

Prepared in accordance with Commission Regulation (EU) 830/2015 amending
Regulation 1907/2006, REACH

HYDROCHLORIC ACID, SOLUTION min. 32%

Revision: 6 Last up date: February 23, 2017 Date issued: November 15, 2010 pag. 50/50

Not relevant.



This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

Code: FDS 011