



HYDROCHLORIC ACID (Concentration >= 25 %)

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product Identifiers

-Product Name	:	HYDROCHLORIC ACID (Concentration >= 25 %)
-Chemical Name	:	Hydrochloric acid
-Molecular Formula	:	HCl
-Reach Registration Number	:	01-2119484862-27-0107
-Type of Product	:	Mixture

1.2. Identified uses / Uses advised against

-Identified uses	:	- Reagent
		- pH-regulating agent
		- Ion exchange resins regenerating agent
		- Pickling agent
		- Washing and Cleaning agent
		- Laboratory chemical
-Uses advised against	:	- None

1.3. Manufacturer or supplier's details

-Company	:	MICRO-BIO (IRELAND) LTD
-Address	:	Industrial Estate, Fermoy, Co. Cork, Ireland
-Telephone	:	+3532531388
-Fax	:	+3532532458
-E-mail address	:	dobrien@micro-bio.ie

1.4. Emergency telephone number

-Emergency telephone number	:	+3532531388 (Available 24/7)
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2. HAZARDS IDENTIFICATION

2.1. GHS Classification

2.1.1. European regulation (EC) 1272/2008, as amended

Classified as hazardous according to the European regulation (EC) 1272/2008, as amended

Hazard class	Hazard category	Route of exposure	H Phrases
Skin corrosion	Category 1B		H314
Specific target organ toxicity - Single exposure	Category 3	Inhalation	H335
Corrosive to metals	Category 1		H290

2.1.2. European Directive 67/548/EEC or 1999/45/EC, as amended

Classified as hazardous according to the European Directive 67/548/EEC or 1999/45/EC, as amended

Hazard class / Hazard category	R-phrase(s)
C	R34
Xi	R37

2.2. EC Label – According to Regulation (EC) 1272/2008, as amended

2.2.1. Name(s) on label

Hazardous components : Hydrochloric acid (>= 25 %)

2.2.2. Signal word

Danger

2.2.3. Hazard symbols



2.2.4. Hazard statements

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

2.2.5. Precautionary statements

Prevention	P260	-	Do not breathe dust or mist
	P280	-	Wear protective gloves/protective clothing/eye protection/face protection.
Response	P303 + P361 + P353	-	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P305 + P351 + P338	-	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P304 + P340	-	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Disposal	P309 + P311	-	IF exposed or if you feel unwell: Call a POISON CENTRE or doctor/physician.
	P501	-	Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Concentration

Substance name:	Concentration
Hydrochloric acid	25-38%
CAS-No.: 7647-01-0 / EC-No.: 231-595-7 / Index-No.: 017-002-01-X	

3.2. Hazardous components – According to Regulation (EC) 1272/2008, as amended

Substance name	Hazard class	Hazard category	Route of exposure	H Phrases
Hydrochloric acid	Skin corrosion	Category 1B		H314
	Specific target organ toxicity – single exposure	Category 3		H335
	Corrosive to metals	Category 1		H290

3.3. Hazardous components – European Directive 67/548/EEC or 1999/45/EC, as amended

Substance name	Classification	Hazard category	R-phrase(s)
Sodium hypochlorite	C	Corrosive	R34
	Xi	Irritant	R37

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures

4.1.1. If inhaled

- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

4.1.2. In case of eye contact

- SPEED IS ESSENTIAL.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.

4.1.3. In case of skin contact

- SPEED IS ESSENTIAL.
- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control centre immediately.
- Wash contaminated clothing before re-use.

4.1.4. If swallowed

- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

4.2. Most important symptoms/effects, acute and delayed

4.2.1. Inhalation

- Severe respiratory irritant
- Symptoms: Breathing difficulties, cough, chemical pneumonitis, pulmonary oedema
- Repeated or prolonged exposure: Nose bleeds, chronic bronchitis.

4.2.2. Skin contact

- Causes severe burns.
- Symptoms: Redness, Swelling of tissue, Burns.

4.2.3. Eye contact

- Corrosive – causes irreversible eye damage
- May cause blindness.
- Symptoms: Redness, Lachrymation, Swelling of tissue, Burn

4.2.4. Ingestion

- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
- Symptoms: Nausea, Abdominal pain, Bloody vomiting, Diarrhoea, Suffocation, Cough, Severe shortness of breath.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2. Unsuitable extinguishing media

- None.

5.2. Specific hazards arising from the chemical

- The product is not flammable.
- Not combustible
- Reacts violently with water.
- Hazardous decomposition products formed under fire conditions.
- Gives off hydrogen by reaction with metals.

5.3. Special protective actions for fire-fighters

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit.
- Cool containers / tanks with water spray.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.
- Keep away from Incompatible products.

6.1.2. Advice for emergency responders

- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Ventilate the area.
- Wear suitable protective clothing.

6.2. Environmental precautions

- Should not be released into the environment.
- If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and materials for containment and cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Prevent product from entering drains.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

- Refer to protective measures listed in sections 7 and 8

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

- Used in closed system
- Use only in well-ventilated areas.
- When diluting, always add the product to water. Never add water to the product.
- Keep away from incompatible products.
- To avoid thermal decomposition, do not overheat.

7.2. Conditions for storage, including incompatibilities

7.2.1. Storage

- Store in original container.
- Keep in a well-ventilated place.
- Keep in properly labelled containers.
- Keep container closed.
- Keep away from incompatible products.

7.2.2. Packaging material

7.2.2.1. Suitable material

- Steel coated.
- PVC
- Polyethylene
- Reinforced polyester
- Glass

7.2.2.2. Unsuitable material

- Metals

7.3. **Specific use(s)**

- For further information, please contact: Supplier

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Exposure Limit Values

Hydrochloric acid

- Ireland: Code of Practice for the Safety Health & Welfare at Work (Chemical Agents) Regulations 2011 (SI No. 619 of 2001)
Occupational Exposure Limit Value(8-hour reference period) = 5 ppm (= 8 mg/m³) - Remarks: Indicative
- Ireland: Code of Practice for the Safety Health & Welfare at Work (Chemical Agents) Regulations 2011 (SI No. 619 of 2001)
Occupational Exposure Limit Value(15 minute reference period) = 10 ppm (= 15 mg/m³) - Remarks: Indicative
- UK. EH40 Workplace Exposure Limits (WELs) 2007
Time weighted average = 1 ppm (=2 mg/m³) -Remarks: Gas and aerosol mists
- UK. EH40 Workplace Exposure Limits (WELs) 2007
Short term exposure limit = 5 ppm (= 8 mg/m³)- Remarks: Gas and aerosol mists
- US. ACGIH Threshold Limit Values 2009
Ceiling Limit Value = 2 ppm
- EU. Indicative Exposure and Directives relating to the protection of risks related to work exposure to chemical, physical, and biological agents. 12 2009
Time weighted average = 5 ppm (= 8 mg/m³)- Remarks: Indicative
- EU. Indicative Exposure and Directives relating to the protection of risks related to work exposure to chemical, physical, and biological agents. 12 2009
Short term exposure limit = 10 ppm (= 15 mg/m³)- Remarks: Indicative

8.1.2. Other information on limit values

8.1.2.1. Predicted No Effect Concentration

- Fresh water, 36 mg/l
- Marine water, 36 mg/l
- Sewage treatment plants, 36 mg/l

8.1.2.2. Derived No Effect Level / Derived minimal effect level

- Workers, Inhalation, Acute effects, 15 mg/m³, Local effects
- Workers, Inhalation, Chronic effects, 8 mg/m³, Local effects

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- Provide adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.

8.2.2. Individual protection measures

8.2.2.1. Respiratory protection

- Use respirator when performing operations involving potential exposure to vapour of the product.
- Respirator with a vapour filter (EN 141)
- Recommended Filter type: AB
- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.

8.2.2.2. Hand protection

- Impervious gloves in compliance with EN374:2003.
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The following list may be used for guidance but is not exhaustive:
- Nitrile rubber- NBR: thickness >= 0,35mm; breakthrough time>=480min.
- Polyvinyl chloride- PVC: thickness >=0,5mm; breakthrough time>=480min.
- Butyl rubber IIR: thickness>= 0,5mm; breakthrough time>=480min.
- Dispose of contaminated gloves appropriately.

8.2.2.3. Eye protection

- Chemical resistant goggles or full-face shield must be worn.
- If splashes are likely to occur, wear: Tightly fitted safety goggles, Face shield.

8.2.2.4. Skin and body protection

- Chemical resistant apron
- If splashes are likely to occur, wear: Rubber or plastic boots, Rubber apron or full PVC overalls.

8.2.2.5. *Hygiene measures*

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- Take off contaminated clothing and shoes immediately.
- Wash contaminated clothing before re-use.
- When using, do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

8.2.3. Environmental Exposure controls

- Dispose of rinse water in accordance with local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Physical and chemical properties

9.1.1. General Information

- **Appearance** Fuming liquid when in contact with air
- **Colour** colourless to pale yellow
- **Odour** pungent
- **Molecular Weight** 36.47 g/mol

9.1.2. Important health safety and environmental information

- **pH** 0.1 (4 % solution)
- **pKa** Not applicable
- **Melting point/freezing point** -63°C (28%); -27°C (36%)
- **Boiling point/boiling range** 97.7°C (28%); 56. °C (36%)108°C
- **Flash point** not applicable
- **Evaporation rate** No data
- **Flammability (solid, gas)** not applicable
- **Flammability** The product is not flammable
- **Explosive properties** Not explosive
- **Vapour pressure** ca. 190 hPa, at 20°C
- **Vapour density** No data
- **Relative density(20°C)** 1.14 (28%); 1.18 (36%)
- **Bulk density** No data
- **Solubility(ies)** Completely soluble in water
- **Solubility/qualitative** Completely miscible, Ether, Alcohol, Acetone, Acetic acid, Benzene, Chloroform
- **Partition coefficient: n-octanol/water** not applicable
- **Autoignition temperature** No data
- **Decomposition temperature** No data
- **Viscosity** No data
- **Oxidizing properties** Non oxidizer

10. STABILITY AND REACTIVITY

10.1. Reactivity

- Potential for exothermic hazard
- Corrosive to metals

10.2. Chemical stability

- Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

- Gives off hydrogen by reaction with metals.
- Keep away from strong bases
- Risk of violent reaction with oxidising agents liberating Chlorine.
- Risk of explosion.

10.4. Conditions to avoid

- Keep away from direct sunlight.
- To avoid thermal decomposition, do not overheat.
- Exposure to moisture.
- Generation of mists or aerosols

10.5. Materials to avoid

- Metals, Oxidizing agents, Acids, Fluorine, Strong bases, Vinylacetate, Hypochlorite

10.6. Hazardous decomposition products

- Hydrogen chloride gas, Hydrogen, Chlorine.

11. TOXICOLOGICAL INFORMATION

11.1. Acute toxicity

- 11.1.1. Acute oral toxicity
 - no data available. Will immediately cause corrosion of and damage to gastrointestinal tract.
- 11.1.2. Acute inhalation toxicity
 - LC50, rat, 45.6 mg/m³ (Hydrogen Chloride)
- 11.1.3. Acute dermal toxicity
 - no data available. Corrosive nature of the substance will predominate.
- 11.1.4. Irritation (other route)
 - Inhalation, mouse, Irritating to respiratory system, 309 ppm, (Hydrogen chloride)
 - Various species, Irritating to mucous membranes
- 11.2. **Skin corrosion/irritation**
 - rabbit, Corrosive-causes severe burns.
- 11.3. **Serious eye damage/eye irritation**
 - rabbit, Corrosive-causes severe eye damage.
- 11.4. **Respiratory or skin sensitization**
 - Did not cause sensitization on laboratory animals.
- 11.5. **Mutagenicity**
 - In vitro tests did not show mutagenic effects
- 11.6. **Carcinogenicity**
 - Inhalation, Prolonged exposure, rat, Animal testing did not show any carcinogenic effects.
- 11.7. **Toxicity for reproduction**
 - Animal testing did not show any effects on fertility.
- 11.8. **Repeated dose toxicity**
 - Inhalation, rat, Respiratory system 15 mg/m³, NOAEC, (Hydrogen chloride)

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Large discharges may contribute to the acidification of water and may be fatal to fish and other aquatic life. Can cause severe damage to aquatic plants.

- Fishes, *Lepomis macrochirus*, LC50, 96 h, 20.5 mg/l, pH 3,25 – 3,5 (Hydrogen chloride)
- Crustaceans, *Daphnia magna*, EC50, 48 h, 0.45 mg/l, pH 4,9 (Hydrogen chloride)
- Algae, *Chorella vulgaris*, EC50, 72 h, 0.73 mg/l, pH 4,7 (Hydrogen Chloride)

12.2. Persistence and degradability

Freely dissociates to Hydrogen and Chloride ions.

12.2.1. Abiotic degradation

- Air, indirect photo-oxidation, t ½ 11 d
Conditions: sensitizer: OH radicals
- Water, Soil Result: Ionization/neutralization: Conditions: pH

12.2.2. Biodegradation

- The methods for determining biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

- Not applicable

12.4. Mobility

- Air
Very volatile
- Water, Soil
Considerable solubility and mobility

12.5. Results of PBT and vPvB assessment

Not classified as PBT or vPvB

12.6. Other adverse effects

- No data available

13. DISPOSAL CONSIDERATIONS

13.1. Waste disposal methods

- Dilute with plenty of water.
- Solutions with low pH-value must be neutralized before discharge.
- Neutralize with chalk, alkali solution or ammonia.
- In accordance with local and national regulations.

13.2. Contaminated packaging

- Where possible recycling is preferred to disposal or incineration.
- Clean container with water.
- Dispose of as unused product.
- In accordance with local and national regulations.

14. TRANSPORT INFORMATION

14.1. International transport regulations

- IATA-DGR

UN number	UN 1789
Class	8
Packing group	II
ICAO-Labels	8 - Corrosive
Proper shipping name	HYDROCHLORIC ACID

- IMDG

UN number	UN 1789
Class	8
Packing group	II
IMDG-Labels	8 - Corrosive
HI/UN No.	1789
EmS	F-A S-B
Proper shipping name	HYDROCHLORIC ACID

- ADR

UN number	UN 1789
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
HI/UN No.	80 / 1789
Proper shipping name	HYDROCHLORIC ACID

- RID

UN number	UN 1789
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
HI/UN No.	80 / 1789
Proper shipping name	HYDROCHLORIC ACID

- ADN

UN number	UN 1789
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
Proper shipping name	HYDROCHLORIC ACID

15. REGULATORY INFORMATION

15.1. Applicable Laws or Regulations

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), as amended.
- Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations, as amended.
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, as amended.
- Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended.
- Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended.
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.
- Code of Practice for the Safety Health & Welfare at Work (Chemical Agents) Regulations 2011 (SI No. 619 of 2001)
- COUNCIL DIRECTIVE 96/82/EC on the control of major-accident hazards involving dangerous substances as amended.
- EH40/2005. Workplace Exposure Limits, as amended through 1,10,2007 (WELs). Published by the Health and Safety Executive (HSE). Issued under the Control of Substances Hazardous to Health Regulations – as amended.

15.2. Notification status

Inventory Information	Status
Toxic Substance Control Act list (TSCA)	- In compliance with inventory
Australian Inventory of Chemical Substances (AICS)	- In compliance with inventory
Canadian Domestic Substances List (DSL)	- In compliance with inventory
Korean Existing Chemicals List (ECL)	- In compliance with inventory
EU list of existing chemical substances (EINECS)	- In compliance with inventory
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	- In compliance with inventory
Inventory of Existing Chemical Substances (China) (IECS)	- In compliance with inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	- In compliance with inventory
New Zealand Inventory of Chemicals (NZIOC)	- In compliance with inventory

16. OTHER INFORMATION

16.1. Full text of H-Statements referred to under section 3

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

16.2. Full text of R-phrases referred to under sections 2 and 3

16.2.1. Full text of R-phrases referred to under section 2

- R34 - Causes burns.
- R37 - Irritating to respiratory system.

16.2.2. Full text of R-phrases referred to under section 3

- R34 - Causes burns.
- R37 - Irritating to respiratory system.

16.3. Other information

- Revised SDS (Revision 4).

Section	Revisions to Previous issue
8	Inclusion of OELV's from Irish Code of Practice-Chemical Agents. Update of information on hand protection.
All	General reformatting without content change.

- Distribute new edition to clients

This SDS is only intended for the indicated country to which it is applicable. The European SDS format compliant with the applicable European legislation is not intended for use nor distribution in countries outside the European Union with the exception of Norway and Switzerland. Safety datasheets applicable in other countries/regions are available upon request. The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.