



CHEMICAL INDUSTRIES (FAR EAST) LIMITED.
化学工业(远东)有限公司

Title SDS – Hydrochloric Acid	Doc. No.	TDC-SDS-Lab-H008
	Revision	B
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SAFETY DATA SHEET (SDS)

HYDROCHLORIC ACID (30 – 38%), FOOD GRADE

Preface

Hydrochloric acid, aqueous, is a colorless to pale yellow fuming and corrosive liquid.

HCl and its fume are strong irritants of the eye, mucous membranes and skin. It can cause burns on any part of the body it comes in contact with. The mucous membranes of the eye and upper respiratory tract are particularly susceptible to irritation by hydrogen chloride fume coming from the material.

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1	CHEMICAL PRODUCT & COMPANY IDENTIFICATION
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Product name : Hydrochloric acid
 Chemical name : Hydrochloric acid
 Chemical formula : HCl
 Other names : Hydrochloric acid, aqueous / Muriatic acid
 Company's name & address : Chemical industries (Far East) Limited
 (head office) : 3, Jalan Samulun, Jurong Town, Singapore 629127
 Tel: 6265 0411 Fax: 6265 6690 Email: chemical.ind@cil.sg
 (manufacturing plant) : 91, Sakra Avenue, Jurong Island, Singapore 627882
 Tel: 6867 6977 Fax: 6867 6972 Email: sakraplant@cil.sg
 Emergency telephone number : 6265 0411 or 6867 7433 (Manufacturing plant's control room)

2	HAZARD IDENTIFICATION
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GHS CLASSIFICATION :

Corrosive to metals : Category 1
 Acute Toxicity :
 Oral : Category 2
 Dermal : Category 2
 Inhalation : Category 3
 Skin corrosion/irritation: : Category 1B
 Serious eye damage/irritation : : Category 1
 Skin sensitization: : Category 1
 Carcinogenicity : Not classified
 Reproductive toxicity : Not classified
 Specific target organ toxicity (single exposure): Category 3
 Specific target organ toxicity (repeated exposure) : Not classified

GHS label elements

Pictograms:



Signal word:

Danger

Hazard Statement(s):

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

Precautionary Statement(s):

Prevention:

P202: Do not handle until all safety precaution have been read and understood.
 P233: Keep container tightly close.
 P260: Do not breathe in mist or vapours or spray.
 P264: Wash thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P273: Avoid release into the environment.
 P280: Wear protective glove, clothing, eye protection and face protection.

Response:

P310: Immediately call a POISON CENTRE or doctor/physician

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P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353: IF ON SKIN: 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.

P363: Wash contaminated clothing before re-use.

P390: Absorb spillage to prevent material damage.

Storage and disposal:

P403 + P233: Store in a well ventilated place. Keep container tightly closed.

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients		CAS No. ¹	EC-No. ²	EC-Index-No. ³	Symbol / R-phrase	Content
Hydrochloric acid (HCl)	:	7647-01-0	231-595-7	017-002-01-X	C, R34 Xi, R37	30 -38%
Water	:	7732-18-5	231-791-2	-	-	Balance

C = Corrosive
R 34 = Causes burns

Xi = irritant
R 37 = irritating to respiratory system

4 FIRST-AID MEASURES

Types of contact...	First aid measures
Eye contact	Wash eyes thoroughly with water for at least 15 minutes with eyelids held widely open. Continue to wash with large amounts of water. Immediately summon for eye doctor / specialist.
Skin contact	Immediately wash off with plenty of water. Any clothing contaminated with HCl should be removed immediately and washed before re-use. Summon medical attention for serious exposure.
Inhalation	Remove victim from area of exposure to an area of fresh air and give oxygen if necessary. Allow victim to assume most comfortable position and keep warm. Summon medical attention.
Ingestion	If swallowed, DO NOT induce vomiting. If victim is conscious give plenty of water. Spontaneous vomiting may occur. Never give anything to an unconscious victim. Immediately summon medical attention.

Note: Speed in removing victim from contaminated area and removing HCl from eyes / skin are of primary importance.

5 FIRE-FIGHTING MEASURES

- Fire-fighting media : Not combustible. However, if material is involved in a fire, use fine water spray and normal foam.
- Protective equipment for fire-fighting : Fire fighters should use full protective clothing and full-face positive pressure self-contained breathing apparatus.
- Special risks : Non-combustible but flammable hydrogen gas may form upon contact with metals (danger of explosion). Heating can cause expansion or decomposition of the material, which can lead to the containers exploding.
Contain escaping HCl fume with water spray. Prevent fire-fighting water contaminated with the substance to enter drains or sewerage systems.

¹ CAS – Chemical Abstract Service

² EC No. – No. given by EC Commission

³ EC Index No. – as per appendix 1 of the regulation 67/548/EC

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6	ACCIDENTAL RELEASE MEASURES
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- Personal precautions and protective equipment : Avoid contact with skin / eye. Do not inhale vapor / fume. Ensure supply of fresh air in enclosed room.
Use full protective clothing, rubber gloves, rubber boots, and eye goggles.
- Procedure to stop / minimize : 1. Prevent further leakage if it is safe to do so.
2. For minor spill / leak, contain spills and soak up with suitable absorbent and forward to licensed waste disposal contractors for disposal.
3. For the contained spill / leak, render harmless by careful neutralization with dilute sodium hydroxide solution, or by throwing on slaked lime / soda ash / limestone. Assistance can be obtained from licensed waste disposal contractors / supplier.
4. If major spill / leak is not under control, inform SCDF / fire brigade / police./ supplier
5. Stay upwind, and evacuate if required.
6. Clean up affected area.
- Method to clean up : Collect or flush with water to holding area for neutralization. Render harmless the recovered substance / water washing by careful neutralizing using dilute sodium hydroxide solution, or by throwing on slaked lime / soda ash / limestone.
Dispose in accordance to current local disposal regulations.
(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations.)
- Environmental precautions : Prevent liquid from entering sewer, surface water, ground water and soil. Advise authorities if substance has entered a watercourse / drain / soil.

7	HANDLING & STORAGE
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- Usual shipping containers : Hard rubber lined steel tankers, polyethylene drums / carboys.
- Handling : Keep containers closed. Handle containers with care. Container remains hazardous when empty. Do not wash out containers and use it for other purpose. Continue to observe all precautions until it had been properly washed.
When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid.
- Storage : Do not use metal containers. Store at ambient temperature and in a well-ventilated area away from incompatible materials (see also section 10). Keep away from source of heat / ignition. Protect from direct sunlight.

8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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- Engineering controls : Provide adequate general and/or local ventilation in areas of storage and use where HCl fume is present to meet PEL (personal exposure limit) requirements.
Provide water supply / emergency eyewash / shower near area of handling.
- Safe work practices / industrial hygiene : Wash hands and face after working with the substance, and before eating / drinking. Immediately remove contaminated clothing. Wash before re-using.
- Personal protection
1. Eye protection : Use safety goggle / face shield.
 2. Skin protection : Use rubber gloves, acid-resistant protective clothing and rubber boots. Chemical resistance of materials should be ascertained with the vendor.
 3. Respiratory protection : Use approved half-face filter respirator suitable for the substance to be worn when vapor / fume of the material is present.
 4. Other protective equipment : Uniform, apron, long-sleeved lab coat
- Occupational exposure standards : TWA 8 hours = data not available
STEL = 5 ppm (Singapore permissible exposure limit)
(TWA – time weighted average, STEL – Short term exposure limit)

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9	PHYSICAL & CHEMICAL PROPERTIES
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Appearance	:	Clear, colorless to pale yellow liquid Fuming when conc. above 20% HCl.
Boiling point (at 1013 hPa)	:	About 48°C (for 38% HCl) about 90°C (for 30% HCl)
Melting point	:	Not available
Vapor pressure (at 20°C)	:	283 hPa (for 38% HCl) 21.3 hPa (for 30% HCl)
Specific gravity (at 20°C)	:	About 1.1885 (for 38% HCl) 1.1495 (for 30% HCl)
Solubility in water (at 20°C)	:	Completely soluble
Corrosiveness	:	Material is highly corrosive to most metals with the release of hydrogen gas, which is highly flammable when mixed with air.
Viscosity (dynamic, at 20°C)	:	Not available
Evaporation rate	:	Not available
Vapor density	:	Not available
Odor	:	Pungent, sharp & irritating
pH (at 100 g/l, 20°C)	:	< 1
Flash point	:	Not applicable
Explosive limits	lower	: Not applicable
	upper	: Not applicable
Auto-ignition temperature	:	Not applicable
Molecular weight	:	36.5

10	STABILITY & REACTIVITY
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Stability	:	Stable under ambient conditions
Conditions to avoid instability	:	Heat
Hazardous decomposition products	:	HCl fume due to vaporization. Hydrogen gas when reacted with metals (See section 5)
Conditions to avoid polymerization	:	No information available
Materials & conditions to avoid (incompatibility)	:	Metals / alkali metals / metal oxides / metal hydroxides / amines / carbides / hydrides / carbonates / fluorine / strong alkalis, conc. Sulfuric acid / conc. Nitric acid
Further information	:	Avoid metals / alloy metals in working materials.

11	TOXICOLOGICAL INFORMATION
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Acute toxicity	:	LC ₅₀ (inhalation, rat) – 3124 ppm vol / 1 hour (calculated on pure substance)
Further data	:	Further hazardous properties cannot be excluded. Handle with usual care when dealing with chemicals. See also section 2 on effects on health.

12	ECOLOGICAL INFORMATION
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Ecotoxicity	:	Harmful effect on aquatic organisms due to pH shift. Corrosive even when diluted. Toxic effect on fish (lethal when > 25 mg/l) & plankton. Does not cause biological oxygen deficit. Can damage plant growth (harmful when > 6 mg/l)
Further ecological data	:	Prevent liquid from entering sewer, surface water, ground water and soil. Advise authorities if substance has entered a watercourse / drain / soil.

13	DISPOSAL CONSIDERATIONS
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Considerations	:	Do not dispose substance directly to sewerage, ground-water and surface-water system. Render harmless the recovered substance / water washing by careful neutralizing using dilute sodium hydroxide solution, or by throwing on slaked lime / soda ash / limestone. Consult approved waste collectors for disposal.
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Singapore regulations : Dispose in accordance to current local disposal regulations.
(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations)

14	TRANSPORT INFORMATION
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Proper shipping name (for land / sea / air) : HYDROCHLORIC ACID

	UN No. ⁴	Hazard class	PSA Group ⁵
Land [The Environmental Pollution Control (Hazardous substances) Regulations]	1789	8	III
Sea (IMDG ⁶ / IMO ⁷)	1789	8	III
Air (ICAO ⁸ / IATA ⁹)	1789	8	III

15	REGULATORY INFORMATION
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In Singapore:

Import & sale of hazardous substances : Environmental Protection and Management (Hazardous Substances) Regulations

Disposal of obsolete / expired chemicals / waste : Environmental Public Health (Toxic Industrial Waste) Regulations

Symbol : C Corrosive

R-phases : R 34, 37 Causes burns. Irritating to respiratory system.

S-phases : S 26-36/37/39-45 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

	Hazard type	Hazard class.	UN No.	Hazchem code
Hydrochloric acid (HCl)	Corrosive	8	1789	2R
NFPA rating ¹⁰	Health 3	Reactivity 0	Flammability 0	Other ACID "ACID" = acid

16	OTHER INFORMATION
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Revision No.	Date of issue	Description of changes
A	Aug 2017	Initial release
B	Apr 2023	Overall review

⁴ UN No. – No. issued by United Nations Subcommittee Experts

⁵ PSA Group – Grouping of dangerous goods by Port Of Singapore Authority

⁶ IMDG – International Maritime Dangerous Goods

⁷ IMO – International Maritime Organisation

⁸ ICAO – International Civil Aviation Organisation

⁹ IATA – International Air Transport Association

¹⁰ NFPA rating – rating according to National Fire Protection Agency