



Chemical Marketing & Distribution Co. Ltd.

Material Safety Data Sheets HYDROCHLORIC ACID 31%

1 Product Information and Company Identification

Chemical	Hydrochloric Acid
Synonyms	Muriatic acid; Hydrogen Chloride, aqueous
Chemical Formula	HCl in water
CAS No	7647-01-0
Molecular Weight	36.46
Product Number/s	
Supplier	Chemical Marketing and Distribution Co. Ltd. (CMDC)
Address	P. O. Box 1053 Dammam 31431 Saudi Arabia
Telephone Number	966 03 8572466
Facsimile Number	966 03 8572648
E Mail Address	sales@cmdc.com.sa
Manufacturer	Basic Chemical Industries Ltd. (BCI), Saudi Arabia

2 Composition/Information on Ingredients

<u>Ingredients</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Hydrogen Chloride	7647-01-0	30 - 31%	Yes
Water	7732-18-5	69 - 70%	No

3 Hazards Identification

Emergency Overview	Danger! Corrosive! Liquid and mist cause severe burns to all body tissues. Maybe fatal if swallowed or inhaled. Inhalation may cause lung damage.
Inhalation	Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death.
Ingestion	Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea, and in severe cases, death.
Skin Contact	Corrosive! Skin contact can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.
Eye Contact	Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.
Chronic Exposure	Long-term exposure to concentrated vapors may cause erosion of teeth. Long-term exposures seldom occur due to the corrosive properties of the acid.
Aggravation of Pre-existing Conditions	Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

4 First Aid Measures

Inhalation	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	If swallowed, do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing and clean shoes before reuse.
Eye Contact	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5 Fire Fighting Measures

Fire	Extreme heat or contact with metals can release flammable hydrogen gas.
Explosion	Not considered to be an explosion hazard.
Fire Extinguishing Media	If involved in a fire, use water spray. Neutralize with soda ash or slaked lime.
Special Information	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving hydrochloric acid. Stay away from ends of tanks. Cool tanks with water spray until well after fire is out.

6 Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as sawdust. Do not flush to sewer!

7 Handling And Storage

Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat and incompatible materials. Do not wash out container and use it for other purposes. When diluting, always add the acid to water; never add water to the acid. When opening metal containers, use non-sparking tools because of the possibility of hydrogen gas being present. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8 Exposure Controls/Personal Protection

Airborne Exposure Limits	For Hydrochloric acid OSHA Permissible Exposure Limit (PEL) - 5 ppm (Ceiling) ACGIH Threshold Limit Value (TLV) - 5 ppm (STEL/Ceiling)
--------------------------	--

Ventilation System	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.
Personal Respirators (NIOSH Approved)	If the exposure limit is exceeded, a full face piece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
Skin Protection	Use rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.
Eye Protection	Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9 Physical And Chemical Properties

Appearance	Colorless, fuming liquid.
Odor	Pungent odor of hydrogen chloride.
Solubility	Infinite in water with slight evolution of heat.
Specific Gravity	1.18
pH	
Boiling Point	53C (127F) Azeotrope (20.2%) boils at 109C (228F)
Melting Point	-74C (-101F)
Vapor Density (Air=1)	No information found.
Vapor Pressure (mm Hg)	190 @ 25C (77F)
Evaporation Rate (BuAc=1)	No information found.
% Volatiles by volume @ 21C (70F)	100

10 Stability And Reactivity

Stability	Stable under ordinary conditions of use and storage. Containers may burst when heated.
Hazardous Decomposition Products	When heated to decomposition emits toxic 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.
Hazardous	Will not occur.

Polymerization	
Incompatibilities	A strong mineral acid, concentrated hydrochloric acid is highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulfides, sulfites, and formaldehyde.
Conditions to Avoid	Heat, direct sunlight, incompatibles.

11 Toxicological Information

Inhalation rat LC₅₀ - 3124 ppm/1H
 Oral rabbit LD₅₀ - 900 mg/kg.
 Investigated as a tumorigen, mutagen, and reproductive effector.

12 Ecological Information

Environmental Fate	When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater.
Environmental Toxicity	This material may be toxic to aquatic life.

13 Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of containers and unused contents in accordance with federal, state and local requirements.

14 Transport Information

Domestic	Proper Shipping Name	Hydrochloric Acid
	Hazard Class	8
	UN/NA	UN1789
	Packing Group	II
International (Water, I.M.O.)	Proper Shipping Name	Hydrochloric Acid
	Hazard Class	8
	UN/NA	UN1789
	Packing Group	II

15 Regulatory Information

16 Other Information

NFPA Ratings	Health: 3 Flammability: 0 Reactivity: 0
Label Hazard Warning	Danger! Corrosive! Liquid and mist cause severe burns to all body tissues. May be fatal if swallowed or inhaled. Inhalation may cause lung damage.
Label Precautions	Do not get in eyes, on skin, or on clothing.

Do not breathe vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Store in a tightly closed container.
Remove and wash contaminated clothing promptly.

Label First Aid

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.