

MATERIAL SAFETY DATA SHEET**Hydrochloric Acid****Section 01 - Chemical And Product And Company Information**

Product Identifier Hydrochloric acid, muriatic acid, hydrogen chloride, inhibited hydrochloric acid

Product Use Acidizing (activation) of petroleum wells, scale removal, ore reduction, metal cleaning, pH adjustment, industrial acidizing, generation of chlorine dioxide, regeneration of ion exchange resins.

Supplier Name..... ClearTech Industries Inc.
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Prepared By..... ClearTech Industries Inc. Technical Department
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Preparation Date..... August 3, 2010

24-Hour Emergency Phone..... 306-664-2522

**Section 02 - Composition / Information on Ingredients**

Hazardous Ingredients..... Hydrochloric Acid 10-40%

CAS Number..... Hydrochloric Acid 7647-01-0

Synonym (s)..... Aqueous hydrogen chloride, muriatic acid

Section 03 - Hazard Identification

- Inhalation**..... Vapour or mist can cause irritation to nose, throat, and upper respiratory tract. Symptoms include: coughing, choking, and bleeding of the nose and gums. Severe exposure can result in pulmonary edema and corrosion of tissues in the nose and throat.
- Skin Contact / Absorption**..... Contact may produce severe irritation or corrosive skin damage, depending upon length of contact and amount of acid. Effects range from dermatitis, photo sensitization, redness, swelling, pain, permanent scarring, to death.
- Eye Contact**..... Low concentrations of vapour or mist can be irritating, causing redness. Concentrated vapour, mist or splashed liquid can cause severe irritation, burns and permanent blindness.
- Ingestion**..... Causes severe burns of the mouth, esophagus, and stomach, with consequent pain, nausea, vomiting, diarrhea, circulatory collapse, and possibly death.
- Exposure Limits**..... OSHA/PEL: 5ppm
ACGIH/TWA-TLV: 2ppm

Section 04 - First Aid Measures

- Inhalation**..... Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.
- Skin Contact / Absorption**..... Remove contaminated clothing. Wash affected area with lukewarm water for 20-30 minutes. Seek medical attention immediately.
- Eye Contact**..... Flush immediately with lukewarm water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.
- Ingestion**..... Do not induce vomiting. If vomiting occurs, lean victim forward to prevent breathing in vomitus. Rinse mouth out with water. If the victim can swallow, give 1 cup of water or milk to dilute. If vomiting occurs, rinse the mouth out and give another cup of water. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.
- Additional Information**..... Not available



Section 05 - Fire Fighting

- Conditions of Flammability**..... Non-flammable
- Means of Extinction**..... Product does not burn. Where fire is involved, use any fire fighting agent appropriate for surrounding material; use water spray to cool fire-exposed surfaces.
- Flash Point**..... Not applicable
- Auto-ignition Temperature**..... Not applicable
- Upper Flammable Limit** Not applicable
- Lower Flammable Limit**..... Not applicable
- Hazardous Combustible Products**... Hydrogen and chlorine gas formed at temperatures over 1500°C.
- Special Fire Fighting Procedures**..... Wear NIOSH-approved self-contained breathing apparatus and protective clothing.
- Explosion Hazards**..... Normally none, but when in contact with metals explosive hydrogen gas may be evolved.

Section 06 - Accidental Release Measures

- Leak / Spill**..... Wear appropriate personal protective equipment. Ventilate area. Vapors evolved from spill or leak can be knocked down with water fog or spray. Small spills and residues can be neutralized with alkalis such as soda ash or lime and residual sludge shoveled into a container for future disposal. Carbon dioxide will be release so use caution. Large spills should be contained, and if not recoverable, then diluted with water or flushed to holding area and neutralized. Do not allow hydrochloric acid waste to be discharged direct to sewer or sources of water.
- Deactivating Materials**..... Soda ash, lime, limestone

Section 07 - Handling and Storage

- Handling Procedures**..... Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.



Storage Requirements..... Store in a cool, dry, well-ventilated place. Keep container tightly closed, and away from incompatible materials. Store away from incompatible materials such as oxidizing materials, reducing materials and strong bases.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

- Eyes**..... Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.
- Respiratory**..... At concentrations up to 50 ppm, chemical charge respirator or air-purifying respirator is recommended. Above this level, a full face self-contained breathing apparatus is required.
- Gloves**..... Impervious gloves of chemically resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
- Clothing**..... Body suits, aprons, and/or coveralls of chemical resistant material (butyl rubber, neoprene, nitrile rubber, Teflon, Responder, Viton) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
- Footwear**..... Impervious boots of chemically resistant material should be worn at all times.

Engineering Controls

- Ventilation Requirements**..... Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems.
- Other**..... Emergency shower and eyewash should be in close proximity.

Section 09 - Physical and Chemical Properties

- Physical State**..... Liquid
- Odor and Appearance**..... Colourless or slightly yellow, fuming liquid with a pungent odour.
- Odor Threshold**..... Detectable at 1-5ppm
- Specific Gravity (Water=1)**..... 1.16-1.19 (30-35%); 1.08 (15%)
- Vapor Pressure (mm Hg, 20C)**..... 84mm Hg at 20°C (35%)



Vapor Density (Air=1).....	1.268 at 20°C
Evaporation Rate.....	< 1
Boiling Point.....	90°C (30%), 83°C (31%), 62°C (35%)
Freeze/Melting Point.....	-35°C (35%)
pH.....	< 1
Water/Oil Distribution Coefficient....	Not available
Bulk Density.....	Not applicable
% Volatiles by Volume.....	100%
Solubility in Water.....	Completely miscible
Molecular Formula.....	HCl
Molecular Weight.....	36.46

Section 10 - Stability and Reactivity

Stability.....	Stable, heat and contamination could cause decomposition.
Incompatibility.....	Incompatible with strong bases, metals, phosphines, acetylides, borides, carbides, silicides, vinyl acetate, formaldehyde, hypochlorites, cyanides, sulphides.
Hazardous Products of Decomposition..	Contact with hypochlorites liberates chlorine gas. May react violently with incompatible substances. May release toxic and/or flammable gases such as hydrogen and phosphine gas. Considerable amounts of heat may be evolved.
Polymerization.....	Will not occur.

Section 11 - Toxicological Information

Irritancy.....	Severe irritant, corrosive to eyes and skin.
Sensitization.....	Not available
Chronic/Acute Effects.....	Prolonged exposure can cause erosion and discolouration of teeth and chronic inflammation of nose, throat, and airways. Repeated or prolonged contact to dilute solutions can cause dermatitis.



Synergistic Materials..... Not available

Animal Toxicity Data..... LC₅₀(mist exposure, rat, 30 min): 5,666ppm
LD₅₀(oral,rabbit): 900mg/kg

Carcinogenicity..... Not considered to be carcinogenic by IARC, NTP and ACGIH.

Reproductive Toxicity..... Not available

Teratogenicity..... Not available

Mutagenicity..... Not available

Section 12 - Ecological Information

Fish Toxicity..... LC₅₀(Mosquito Fish, 96 hrs): 282mg/L
LC₅₀(Bluegill, 48 hrs): 3.6mg/L

Biodegradability..... Not available

Environmental Effects..... Extremely toxic to aquatic life by lowering the pH below 5.5. Dissociates in water and will be neutralized by naturally occurring alkalinity and carbon dioxide. Acid will permeate soil, dissolving soil material and will be neutralized somewhat.

Section 13 - Disposal Consideration

Waste Disposal..... Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 - Transportation Information

TDG Classification

Class..... 8

Group..... II

PIN Number..... UN1789

Other..... Secure containers (full and/or empty) with suitable hold down devices during shipment.



Section 15 - Regulatory Information

WHMIS Classification.....D1, E

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

NSF Certification.....Product is certified under NSF/ANSI Standard 60 for scale control and pH adjustment at a maximum dosage for the following:

31% hydrochloric acid: 45mg/L

35% hydrochloric acid: 40mg/L

Section 16 - Other Information

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / MSDS coordinator

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If you have any questions or concerns please call our customer service or technical service department.

ClearTech Industries Inc. - Locations

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Location	Address	Postal Code	Phone Number	Fax Number
Richmond, B.C.	12431 Horseshoe Way	V7A 4X6	604-272-4000	604-272-4596
Calgary, AB.	5516E - 40 th St. S.E.	T2C 2A1	403-279-1096	403-236-0989
Edmonton, AB.	11750 - 180 th Street	T5S 1N7	780-452-6000	780-452-4600
Saskatoon, SK.	2302 Hanselman Avenue	S7L 5Z3	306-933-0177	306-933-3282
Regina, SK.	555 Henderson Drive	S42 5X2	306-721-7737	306-721-8611
Winnipeg, MB.	340 Saulteaux Crescent	R3J 3T2	204-987-9777	204-987-9770
Mississauga, ON.	7480 Bath Road	L4T 1L2	905-612-0566	905-612-0575

24 Hour Emergency Number - All Locations - 306-664-2522