



Safety Data Sheet

Section 01 - Product And Company Identification

Product Identifier	Hydrochloric Acid (10-35)%
Other Means of Identification	ClearTech Industries Inc.
Product Use and Restrictions on 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.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
Prepared By	ClearTech Industries Inc. Quality Department Phone: 1 (800) 387-7503
24-Hour Emergency Phone	Phone: 1 (306) 664 – 2522 Alternative Phone: 1 (800) 387-7503

Section 02 - Hazard Identification

GHS-Classification

Acute Toxicity-Oral	Category 4
Acute Toxicity-Inhalation	Category 3
Skin Corrosion/Irritation	Category 1A
Serious Eye Damage/Eye Irritation	Category 1
STOT-Single Exposure (Lungs Inhalation)	Category 3
Corrosive to Metals	Category 1

Signal Word

Danger

Hazard Statements

Harmful if swallowed.

Toxic if inhaled.

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause respiratory irritation.

May be corrosive to metals.

Pictograms**Precautionary Statements**

Keep only in original packaging

Wear protective gloves and eye/face protection.

Do not eat, drink or smoke when using this product.

Do not breathe dust or mist.

Wash hands and exposed areas thoroughly after handling

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in well-ventilated area.

Absorb spillage to prevent material-damage

If SWALLOWED: Call a POISON CENTER/doctor

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

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

Wash contaminated clothing before reuse.

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

Immediately call a POISON CENTER or doctor/physician.

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

Absorb spillage to prevent material-damage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up

Store in a corrosion resistant container with a resistant inner liner

Dispose of contents/container in accordance to Federal, Provincial, Municipal or other applicable regulations

For specific treatment refer to Section 4 of SDS

Section 03 - Composition / Information on Ingredients

Chemical Name	CAS Number	Weight %	Unique Identifiers
Hydrochloric Acid	7647-01-0	10-40%	Not Available

Common Name and Synonyms Aqueous hydrogen chloride, muriatic acid, hydrogen chloride, HCl, chlorohydric acid.

Section 04 - First Aid Measures

Inhalation	This chemical is very toxic. Take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment, use the buddy system). Remove source of contamination or move victim to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED) immediately. Avoid mouth-to-mouth contact by using mouth guards or shields. Quickly transport victim to an emergency care facility.
Skin Contact / Absorption	Avoid direct contact. Wear chemical protective clothing, if necessary. Remove contaminated clothing. Wash affected area with lukewarm water for at least 30 minutes. If irritation persists, repeat flushing. DO NOT INTERRUPT FLUSHING. If necessary, and it can be done safely, continue flushing during transport to emergency care facility. Quickly transport victim to an emergency care facility. Double bag, seal, label and leave contaminated clothing, shoes and leather goods at the scene for safe disposal. NOTE: Any skin contact will also involve significant inhalation exposure. Seek immediate medical attention.
Eye Contact	Avoid direct contact. Wear chemical protective gloves, if necessary. Contact lenses should never be worn when working with this product. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto the face. Quickly transport victim to an emergency care facility. NOTE: Any eye contact will also involve significant inhalation exposure. Seek immediate medical attention.
Ingestion	NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.
Additional Information	Provide general supportive measures (comfort, warmth, rest). Consult a doctor and/or the nearest Poison Control Centre for all exposures. Some first aid procedures recommended above require advanced first aid training. Protocols for undertaking advanced procedures must be developed in consultation with a doctor and routinely reviewed. All first aid procedures should be periodically reviewed by a doctor familiar with the material and its conditions of use in the workplace.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media	Non-flammable. Contact with common metals produces extremely flammable hydrogen gas. Hydrochloric acid is not combustible, but it is extremely corrosive and very toxic. Decomposes under intense fire conditions to form extremely flammable and potentially explosive hydrogen gas and very toxic and corrosive chlorine gas. Use water spray to keep fire-exposed containers cool. Extinguish fire using agent suitable for surrounding fire. Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use water spray to knock-down vapours.
Unsuitable Extinguishing Media	Not Available
Specific Hazards Arising From the Chemical	Contact with common metals produces extremely flammable hydrogen gas. When heated or in a fire, toxic and corrosive hydrogen chloride gas is released. Hydrogen chloride is thermally stable up to approximately 1500°C (2732°F). Above this temperature, hydrogen chloride begins to dissociate into extremely flammable hydrogen gas and very toxic and corrosive chlorine gas. Heat from a fire can cause a rapid build-up of pressure inside closed containers, which may cause explosive rupture and a sudden release of large amounts of flammable and corrosive gases.

**Special
Protective
Equipment and
Precautions for
Fire-Fighters**

CAUTION:Very toxic and corrosive chemical and vapours.
Wear NIOSH-approved self-contained breathing apparatus and protective clothing. Evacuate area and fight fire from a safe distance or protected location. Approach fire from upwind to avoid corrosive and very toxic hydrogen chloride and chlorine gases.
If possible, isolate hydrochloric acid containers and move them from the fire area if this can be done without risk, and protect personnel. Otherwise, fire-exposed containers or tanks should be cooled by application of hose streams and this should begin as soon as possible (within the first several minutes) and should concentrate on any unwetted portions of the container. Water is very effective in knocking down hydrogen chloride gas escaping from leaking hydrochloric acid containers. The resulting hydrochloric acid solutions are very corrosive and very toxic. Dike fire control water for appropriate disposal. **DO NOT** direct water at open or leaking containers and take precautions not to get water into the hydrochloric acid containers. After the fire has been extinguished, explosive, toxic atmospheres may linger. Before allowing workers to enter such an area, especially confined areas, check the atmosphere with an appropriate monitoring device while wearing full protective gear.

**Further
Information**

Hydrochloric acid solutions will not accumulate static charge, since they have very high electrical conductivities. They will not be ignited by a static discharge, since they are not combustible.

Section 06 - Accidental Release Measures

**Personal Precautions /
Protective Equipment /
Emergency Procedures**

Wear appropriate personal protective equipment. Ventilate area. Vapours evolved from the spill or leak can be knocked down with water fog or spray. Only enter area with PPE. Stop or reduce leak if safe to do so. Prevent material from entering sewers and waterways. Flush with water to remove any residue.

**Environmental
Precautions**

Do not allow hydrochloric acid waste to be discharged direct to sewer or sources of water.

**Methods and Materials
for
Containment and
Cleaning Up**

Spill Precautions:

Evacuate all downwind, unprotected personnel. Restrict access to area until completion of clean-up. Ensure clean-up is conducted by fully-trained personnel only. Wear adequate personal protective equipment. Ventilate area.
Notify government occupational health and safety and environmental authorities.

Clean-up:

Do not touch spilled material. Keep upwind and out of low areas. Prevent material from entering sewers, waterways or confined spaces.
Stop or reduce leak if it can be done without risk. Water fog or spray may be necessary to knock down vapours.

Recover spilled hydrochloric acid if feasible.

Contain spill with earth, sand, or absorbent material which does not react with spilled material.

Small spills: Contain and soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labeled containers. Flush area with water. Do not get water inside containers.

Contaminated absorbent material may pose the same hazards as the spilled product.

Large spills: Contact fire and emergency services and supplier for advice.

Section 07 - Handling and Storage

Precautions for Safe Handling

This material is VERY TOXIC (INHALATION HAZARD, may be fatal). It is also a SKIN CONTACT HAZARD and CORROSIVE to the eyes and skin. Before handling, it is very important that engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use.

Avoid generating hydrogen chloride vapours or mists. Prevent the release of vapours/mist into workplace air. Consider using closed handling systems for processes involving this material. If a closed handling system is not possible, use in the smallest possible amounts in a well-ventilated area, separate from the storage area.

In case of leaks or spills, escape-type respiratory protective equipment should be available in the work area. If hydrochloric acid is released, immediately put on a suitable respirator and leave the area until the severity of the release is determined. Immediately report leaks, spills or ventilation failures.

Do not use near welding operations, flames or hot surfaces.

Do not use with incompatible materials such as oxidizing agents, reducing agents, metals, bases, sulfuric acid, perchloric acid and many more.

Never add water to a corrosive. Always add corrosives to water. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation.

Conditions for Safe Storage

Store in a cool, dry, well-ventilated area, out of direct sunlight and away from heat sources. Keep quantity stored as small as possible. Drums should be vented when received and then at least weekly to relieve internal pressure.

Store away from incompatible materials, such as oxidizing agents, reducing agents, bases and metals.

See section 10 Incompatibilities - Materials to Avoid section for more information.

Use corrosion-resistant structural materials and lighting and ventilation systems in the storage area.

Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Post warning signs. Inspect periodically for damage or leaks. Consider leak detection system with an alarm. Provide raised sills or ramps at doorways or create a trench which drains to a safe location. Floors should not allow liquids to penetrate.

Use the type of container recommended by the chemical manufacturer or supplier. Inspect all incoming containers to make sure they are properly labeled and not damaged. Store containers at a convenient height for handling, below eye level if possible. Avoid stacking. Keep containers tightly closed when not in use and when empty. Protect from damage. Keep empty containers in separate storage area. Empty containers may contain hazardous residues. Keep closed.

Contain spills or leaks by storing in trays made from compatible materials. Keep absorbents for leaks and spills readily available.

Store away from incompatible materials such as oxidizing materials, reducing materials and strong bases. See section 10 for a more complete list of incompatibles.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Hydrochloric Acid	ACGIH	TLV-C	2ppm
	OSHA	PEL-T-C	5ppm (7mg/m ³)

Engineering Control(s)

Ventilation Requirements

Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions must be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.

Other Emergency shower and eyewash must be available and tested in accordance with regulations and be in close proximity.

Protective Equipment

Eyes/Face	Gas tight chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should never be worn; they may contribute to severe eye injury.
Hand Protection	Impervious gloves of chemically resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse. Recommendations are NOT valid for very thin natural rubber, neoprene, nitrile and pvc gloves (0.3 mm or less).
Skin and Body Protection	<p>Guidelines for hydrochloric acid, less than 30% :</p> <p>RECOMMENDED (resistance to breakthrough longer than 8 hours): Butyl rubber, natural rubber, neoprene rubber, nitrile rubber, Viton(TM), Viton(TM)/Butyl rubber, Barrier (PE/PA/PE), Trelchem(TM) HPS, Trelchem(TM) VPS, Tychem(TM) SL (Saranex(TM)), Tychem(TM) CPF 3, Tychem(TM) F, Tychem(TM) BR/LV, Tychem(TM) Responder(TM), Tychem(TM) TK.</p> <p>RECOMMENDED (resistance to breakthrough longer than 4 hours): Polyvinyl chloride, Silver Shield/4H(TM) (polyethylene/ethylene vinyl alcohol).</p> <p>CAUTION, use for short periods only (resistance to breakthrough within 1 to 4 hours): Polyethylene.</p> <p>NOT RECOMMENDED for use (resistance to breakthrough less than 1 hour): Polyvinyl alcohol.</p> <p>Guidelines for hydrochloric acid, 37%</p> <p>RECOMMENDED (resistance to breakthrough longer than 8 hours): Butyl rubber, Neoprene rubber, Viton(TM), Viton(TM)/Butyl rubber, Barrier (PE/PA/PE), Trelchem(TM) HPS, Trelchem(TM) VPS, Tychem(TM) SL (Saranex(TM)), Tychem(TM) CPF 3, Tychem(TM) F, Tychem(TM) BR/LV, Tychem(TM) Responder(TM), Tychem(TM) TK.</p> <p>CAUTION, use for short periods only (resistance to breakthrough within 1 to 4 hours): Polyethylene</p> <p>NOT RECOMMENDED for use (resistance to breakthrough less than 1 hour): Polyvinyl alcohol</p> <p>There is evidence that this material can cause serious skin injury (e.g., corrosion or skin absorption).</p> <p>Resistance of specific materials can vary from product to product. Breakthrough times are obtained under conditions of continuous contact, generally at room temperature. Evaluate resistance under conditions of use and maintain clothing carefully.</p>

Respiratory Protection**NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN CHLORIDE (GAS)
CONCENTRATIONS IN AIR:**

UP TO 50 ppm: Chemical cartridge respirator with cartridge(s)* to protect against hydrogen chloride; or gas mask with canister to protect against hydrogen chloride; or powered air-purifying respirator with cartridge(s)* to protect against hydrogen chloride; or SAR; or full-facepiece SCBA. Above this level, a full face self-contained breathing apparatus is required.
*NIOSH approved acid gas or organic vapour cartridge(s) are required.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATION OR IDLH CONDITIONS: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

ESCAPE: Gas mask with acid gas canister; or escape-type SCBA.

NOTE: Substance reported to cause eye irritation or damage; may require eye protection.

NOTE: The IDLH concentration for hydrogen chloride is 50 ppm.

NOTE: The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory protection equipment. In the event of failure of respiratory protective equipment every effort should be made to exit immediately.

Recommendations apply only to NIOSH approved respirators. Air-purifying respirators do not protect against oxygen-deficient atmospheres.

ABBREVIATIONS: SAR = supplied-air respirator; SCBA = self-contained breathing apparatus. IDLH = Immediately Dangerous to Life or Health.

Thermal Hazards

Not Available

Section 09 - Physical and Chemical Properties**Appearance**

Physical State	Fuming liquid
Colour	Colourless or slightly yellow
Odour	Pungent odour
Odour Threshold	Detectable at 1-5ppm

Property

pH	< 1
Melting Point/Freezing Point	-35°C (35.2%)
Initial Boiling Point and Boiling Range	90°C (30%), 83°C (31%), 62°C (35%)
Flash Point	Not Applicable
Evaporation Rate	< 1
Flammability	Non-Flammable
Upper Flammable Limit	Not Applicable
Lower Flammable Limit	Not Applicable
Vapour Pressure (mm Hg, 20°C)	84mm Hg (35%)
Vapour Density (Air=1)	1.268 at 20°C
Relative Density	Not Available
Solubility(ies)	Completely miscible

Partition Coefficient: n-octanol/water	Log P _{OW} = 0.3 (36%)
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	> 1500°C
Viscosity	1.71cSt (10%), 2.0cSt (36%), 2.11cSt (38%) at 20°C
Explosive Properties	Normally none, but when in contact with metals explosive hydrogen gas may be evolved.
Specific Gravity (Water=1)	1.023 (5% HCl); 1.047 (10%); 1.098 (20%); 1.149 (30%); 1.179 (36%); 1.198 (38%) at 20°C (3,15); 1.096 (constant boiling mixture (20.2%) at 25°C.
% Volatiles by Volume	100%
Formula	HCl
Molecular Weight	36.46 g/mol

Section 10 - Stability and Reactivity

Reactivity	Contact with hypochlorites liberates chlorine gas. May react violently with incompatible substances. Large amounts of heat can be released when concentrated hydrochloric acid is mixed with water or with organic solvents.
Stability	Stable, heat and contamination could cause decomposition.
Possibility of Hazardous Reactions	Hazardous polymerization does not occur.
Conditions to Avoid	High temperatures, incompatibles – see section 10.

Incompatible Materials

NOTE: Chemical reactions that could result in a hazardous situation (e.g. generation of flammable or toxic chemicals, fire or detonation) are listed here. Many of these reactions can be done safely if specific control measures (e.g. cooling of the reaction) are in place. Although not intended to be complete, an overview of important reactions involving common chemicals is provided to assist in the development of safe work practices.

METALS (e.g. steel, copper, brass or zinc) - extremely flammable hydrogen gas is released on reaction with many common metals.

Corrosivity to Metals:

Hydrochloric acid (20-38%) is corrosive to most metals, including stainless steels (e.g. 300 series, 400 series, 17-4 PH and Carpenter 20 Cb-3), aluminum (e.g. types 3003, 5052 and Cast B-356), carbon steel (e.g. types 1010, 1020, 1075 and 1076), unalloyed cast iron, zinc, the nickel-base alloys, Monel, Hastelloy D and Incoloy 800, copper, copper-nickel alloy, bronze, silicon bronze, aluminum bronze, brass, naval brass, admiralty brass and titanium. Hydrochloric acid (20-38%) is not corrosive to the nickel-base alloys, Hastelloy B/B-2, Hastelloy C/C-276, Hastelloy G, Monel 625 and Monel 825 and high-silicon cast irons. High-nickel austenitic cast irons offer some resistance to all hydrochloric acid concentrations at room temperature. Dilute hydrochloric acid (up to 10%) is corrosive to stainless steels (e.g. 300 series, 400 series and 17-4 PH), aluminum (e.g. types 3003, 5052 and Cast B-356), carbon steel (e.g. types 1010, 1020, 1075 and 1076), unalloyed cast iron, zinc, Monel, copper, copper-nickel, bronze, silicon bronze, brass, naval brass and admiralty brass. Dilute hydrochloric acid (up to 10%) is not corrosive to the nickel-base alloys, Hastelloy B/B-2, Hastelloy C/C-276, Hastelloy D and Incoloy 825, nickel, high-silicon irons, high-nickel cast irons, the stainless steel, Carpenter 20 Cb-3 (containing 32-38% nickel), titanium and zirconium.

SODIUM - explodes on contact.

BASES (e.g. sodium hydroxide, potassium hydroxide, ammonium hydroxide, amines, 2-aminoethanol or ethyleneimine) - react violently generating heat and pressure.

FORMALDEHYDE - can react to form the potent human carcinogen, bis(chloromethyl) ether.

OXIDIZING AGENTS (e.g. hydrogen peroxide, chlorates or chlorites) - may react generating heat and very toxic and corrosive chlorine gas.

REDUCING AGENTS (e.g. metal hydrides) - reaction may produce extremely flammable hydrogen gas, heat and fire.

PERCHLORIC ACID - decomposes spontaneously and violently.

SULFURIC ACID - dehydrates concentrated hydrochloric acid to release some 250 volumes of hydrogen chloride gas. In a closed tank, sufficient gas may be formed to cause the tank to burst violently.

POTASSIUM PERMANGANATE - a sharp explosion may be produced on adding concentrated hydrochloric acid to potassium permanganate.

ALDEHYDES or EPOXIDES - hydrochloric acid may catalyze violent polymerization, generating heat and pressure.

FLUORINE - incandesces on contact. Aqueous solutions produce flame., respectively).

ACETYLIDES (e.g. cesium acetylide or rubidium acetylide), BORIDES (e.g. magnesium boride), CARBIDES (e.g. rubidium carbide), PHOSPHIDE (e.g. uranium phosphide) or SILICIDES (e.g. lithium silicide) - react producing spontaneously flammable gases (e.g. acetylene, borane, phosphine or silane, respectively).

HEXALITHIUM DISILICIDE - incandesces in concentrated acid; flammable silanes (silicon hydrides) are evolved on contact with dilute acid.

OTHER - Mixing 36% hydrochloric acid with acetic anhydride or chlorosulfonic acid or oleum or propiolactone or propylene oxide or vinyl acetate in a closed container caused the temperature and pressure to increase.

Corrosivity to Non-Metals:

Hydrochloric acid (up to 38%) attacks plastics, such as nylon and polyacetal homopolymer (Delrina); and elastomers, such as, chlorinated polyethylene (CM), styrene-butadiene (SBR) and polysulfone. Hydrochloric acid (up to 38%) does not attack plastics, such as Teflon, and other fluorocarbons, like ethylene tetrafluoroethylene (Tefzel), ethylene chlorotrifluoroethylene (Halar) and polyvinylidene fluoride (Kynar), polyvinylidene chloride (Saran), chlorinated polyvinyl chloride (CPVC), polyvinyl chloride (PVC), polypropylene, acrylonitrile-butadiene-styrene (ABS), styrene-acrylonitrile (SAN), polybutylene terephthalate, high-density polyethylene (LDPE), ultra high molecular weight polyethylene (UHMWPE), crosslinked polyethylene (XLPE), thermoset polyesters (bisphenol A fumarate and isophthalic acid), polystyrene, and ethylene vinyl acetate (EVA); and elastomers, such as ethylene-propylene, Viton A and other fluorocarbons, like Chemraz, Kalrez and Teflon, isoprene, natural rubber, Nitrile Buna N (up to 35% hydrochloric acid), chlorosulfonated polyethylene (Hypalon), flexible polyvinyl chloride, ethylene vinyl acetate (EVA) and low-density polyethylene (LDPE).

Hazardous Products	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.
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Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Hydrochloric Acid	700 mg/kg (rat)	1449 mg/kg (mouse)	475 ppm (guinea pig, 4hr)
	238-277mg/kg (female rat)	> 5010 mg/kg (rabbit)	554 ppm (mouse, 4hr)

Chronic Toxicity – Carcinogenicity

Component	IARC
Hydrochloric Acid	Carcinogenicity designation A4 (hydrogen chloride); not classifiable as a human carcinogen.

Skin Corrosion/Irritation	Hydrochloric acid is corrosive. 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.
Ingestion	Causes severe burns of the mouth, esophagus, and stomach, with consequent pain, nausea, vomiting, diarrhea, circulatory collapse, and possibly death.

Inhalation	Hydrochloric acid solutions can readily release high concentrations of hydrogen chloride gas, which is very toxic and corrosive and poses a serious inhalation hazard. The gas absorbs moisture from the air and can form an acid fog in damp air. The gas is very soluble in water and reacts with the surface of the upper respiratory tract where the majority is neutralized and not likely to cause effects on the lungs. However, higher penetration of the respiratory system can be expected with higher breathing rates and, based on animal information, from higher concentrations. Inhalation of even low concentrations is irritating and can cause coughing, pain, inflammation and swelling in the upper respiratory tract. Exposure to 5-10 ppm is reported as being disagreeable, 35 ppm as causing sore throat, and 50-100 ppm as barely tolerable. Intolerable irritation is expected with a brief (10-minute) exposure to 309 ppm based on animal information (mouse RD50). Higher concentrations can cause constriction of the larynx and bronchi, closure of the glottis and breath-holding. A severe exposure can result in a potentially fatal accumulation of fluid in the lungs (pulmonary edema). Symptoms of pulmonary edema (chest pain and shortness of breath) can be delayed for up to 24 or 48 hours after exposure.
Serious Eye Damage/Irritation	Hydrochloric acid is corrosive to the eyes. Low concentrations of vapour or mist can be irritating, causing redness. Concentrated vapour, mist or splashed liquid can cause severe irritation and damage, burns and permanent blindness.
Respiratory or Skin Sensitization	Hydrochloric acid is not considered an occupational respiratory or skin sensitizer.
Germ Cell Mutagenicity	The available evidence does not indicate that hydrochloric acid is a mutagen.
Reproductive Toxicity	The limited evidence available does not indicate that hydrochloric acid is a developmental toxin
STOT-Single Exposure	Hydrochloric acid solutions release hydrogen chloride, a corrosive gas. Causes respiratory irritation.
STOT-Repeated Exposure	Prolonged exposure can cause erosion and discolouration of teeth and chronic inflammation of nose, throat, and airways. In general, long-term skin contact with low concentrations of corrosive materials can cause dry, red, cracked skin (dermatitis).
Aspiration Hazard	Severe exposure can result in pulmonary edema and corrosion of tissues in the nose and throat.
Synergistic Materials	Not Available

Section 12 - Ecological Information

Ecotoxicity			
Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Hydrochloric Acid	EC ₅₀ (Selenastum capricornutum (Green algae), 72hr): 0.0492 mg/L	LC ₅₀ (Cyprinus carpio (Common carp), 96 hr): 4.92 mg/L LC ₅₀ (Oncorhynchus mykiss (Rainbow trout), 96 hr): 7.45 mg/L	LC ₅₀ (Shrimp, 48hr): 100-330 ppm LC ₅₀ (Carcinus maenas (Green or European shore crab, adult), 48hr): 240 mg/L
Biodegradability	Not Applicable - hydrochloric acid disassociates in water.		
Bioaccumulation	Hydrogen chloride does not accumulate in the food chain.		
Mobility	Hydrogen chloride dissociates into chloride and hydronium ions in moist soil.		

Other Adverse 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 Considerations

Product, Wastes and Packaging Dispose of product and containers in accordance with all federal, provincial and municipal regulations.

Section 14 - Transport Information

UN Number UN 1789

UN Proper Shipping Name HYDROCHLORIC ACID

Transport Hazard Class(es) 8

Packaging Group II

Environmental Hazards Not listed as a marine pollutant under Canadian TDG Regulations Schedule 3, Column 4

Special Precautions Not Available

Transport in Bulk Not Available

TDG

Other Secure containers (full and/or empty) with suitable hold down devices during shipment and ensure all caps, valves, or closures are secured in the closed position.

PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 16 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

Section 15 - Regulatory Information

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

Hydrochloric Acid 10%: 140 mg/L

Hydrochloric Acid 11%: 127 mg/L

Hydrochloric Acid 12%: 117 mg/L

Hydrochloric Acid 13%: 108 mg/L

Hydrochloric Acid 14%: 100 mg/L

Hydrochloric Acid 15%: 93 mg/L

Hydrochloric Acid 16%: 88 mg/L

Hydrochloric Acid 17%: 82 mg/L

Hydrochloric Acid 18%: 78 mg/L

Hydrochloric Acid 19%: 74 mg/L

Hydrochloric Acid 20%: 70 mg/L

Hydrochloric Acid 21%: 67 mg/L

Hydrochloric Acid 22%: 64 mg/L

Hydrochloric Acid 23%: 61 mg/L

Hydrochloric Acid 24%: 58 mg/L



Hydrochloric Acid 25%: 56 mg/L
 Hydrochloric Acid 26%: 54 mg/L
 Hydrochloric Acid 27%: 52 mg/L
 Hydrochloric Acid 28%: 50 mg/L
 Hydrochloric Acid 29%: 48 mg/L
 Hydrochloric Acid 30%: 47 mg/L
 Hydrochloric Acid 31%: 45 mg/L
 Hydrochloric Acid 32%: 44 mg/L
 Hydrochloric Acid 33%: 42 mg/L
 Hydrochloric Acid 34%: 41 mg/L
 Hydrochloric Acid 35%: 40 mg/L

Only if the label bears the NSF Logo.

Section 16 - Other Information

Preparation Date June 3, 2015

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 / SDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution[®] initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

Product is Kosher certified.

If you have any questions or concerns please call our customer service center at 1(800)387-7503.

References

- 1) Canadian Centre for Occupational Health and Safety Retrieved from:
 (2015), <http://ccinfoweb2.ccohs.ca/cheminfo/records/13E.html>
 (2015), <http://ccinfoweb2.ccohs.ca/hsdb/records/545.html>
 (2015), <http://ccinfoweb2.ccohs.ca/chris/records/681.html>http://www.csst.qc.ca/prevention/reptox/pages/fiche-complete.aspx?no_produit=96453
 (2015), <http://ccinfoweb2.ccohs.ca/rtecs/records/MW4025000.htm>
- 2) REPTOX (2015), Retrieved from, http://www.csst.qc.ca/prevention/reptox/pages/fiche-complete.aspx?no_produit=96453
- 3) ECHA (2015), Retrieved from, <http://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/cl-inventory/view-notification-summary/136692>
- 4) TOXNET (2015), Retrieved from, <http://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~HB3uFI:1>



ClearTech Industries Inc. - Locations

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Alternative Phone: 1(800) 387-7503

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Location	Address	Postal Code	Phone Number
Port Coquitlam, B.C.	2023 Kingsway Avenue	V3C 1S9	1(800)387-7503
Calgary, AB.	5516E - 40 th St. S.E.	T2C 2A1	1(800)387-7503
Edmonton, AB.	12020 - 142 nd Street	T5L 2G8	1(800)387-7503
Saskatoon, SK.	19 Peters Avenue Corman Industrial Park	S7K 1V7	1(800)387-7503
Regina, SK.	555 Henderson Drive	S42 5X2	1(800)387-7503
Winnipeg, MB.	340 Saulteaux Crescent	R3J 3T2	1(800)387-7503
Mississauga, ON.	355 Admiral Blvd Unit #1	L5T 2N1	1(800)387-7503

24 Hour Emergency Number - All Locations – 1(306) 664-2522

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End of Safety Data Sheet