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## Section 01 - Identification

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<b>Product Identifier</b>	Muriatic Acid 10% Inhibited
<b>Other Means of Identification</b>	Aqueous hydrogen chloride, muriatic acid, hydrogen chloride, HCl, chlorohydric acid.
<b>Product Use and Restrictions on Use</b>	Acidizing (activation) of petroleum wells, scale removal, ore reduction, metal cleaning, pH adjustment, industrial acidizing, generation of chlorine dioxide, regeneration of ion exchange resins.
<b>Initial Supplier Identifier</b>	Advance Chemicals Ltd. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
<b>Prepared By</b>	ClearTech Industries Inc. Technical Writer Phone: 1 (800) 387-7503
<b>24-Hour Emergency Phone</b>	Phone: 1 (306) 664 – 2522

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## Section 02 - Hazard Identification

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### GHS-Classification

<b>Skin Corrosion/Irritation</b>	Category 1B
<b>Serious Eye Damage/Irritation</b>	Category 1
<b>STOT-Single Exposure</b>	Category 3

### Physical Hazards

<b>Corrosive to Metals</b>	Category 1
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### **Danger**

### **Hazards Statements**

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

### **Pictograms**



## Precautionary Statements

P234 – Keep only in original container

P260 – Do not breathe dust, fume, gas, mist, vapours, or spray.

P264 – Wash hands thoroughly after handling.

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

P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin.

P271 – Use only outdoors or in a well-ventilated area

P280 – Wear protective gloves, protective clothing, eye protection, face protection.

P390 – Absorb spillage to prevent material damage

P363 – Wash contaminated clothing before reuse

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.

P310 – Immediately call a POISON CENTER or doctor/physician.

P405 – Store locked up

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

P501 – Dispose of contents/container in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

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## Section 03 - Composition / Information on Ingredients

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Chemical Name	CAS Number	Weight %	Unique Identifiers
Hydrochloric Acid	7647-01-0	10%	
Water and/or ingredients not classified as hazardous under the Hazardous Products Regulations		90%	

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## Section 04 - First Aid Measures

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<b>Inhalation</b>	Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek medical attention.
<b>Skin Contact / Absorption</b>	Remove contaminated clothing. Wash affected area with lukewarm water for at least 30 minutes. Seek immediate medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.
<b>Eye Contact</b>	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, remove only if easy to do so. Neutral saline solution may be used as soon as it is available. Seek immediate medical attention.
<b>Ingestion</b>	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.
<b>Additional Information</b>	This chemical is very toxic. Take proper precautions to ensure your own safety before assisting others. Any skin or eye contact will also involve significant inhalation exposure.

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## Section 05 - Fire Fighting Measures

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<b>Suitable Extinguishing Media</b>	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.
<b>Unsuitable Extinguishing Media</b>	Not Available
<b>Specific Hazards Arising From the Chemical</b>	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.

**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. Only enter area with PPE. Stop or reduce leak if safe to do so. Flush with water to remove any residue.

**Environmental Precautions** Prevent material from entering sewers and waterways.

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

**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.

**Incompatibilities** Metals, sodium, bases, formaldehyde, oxidizing agent, reducing agents, perchloric acid, sulfuric acid. Potassium permanganate, aldehydes, epoxides, fluorine, acetylides, borides, carbides, phosphide, silicides, hexalithium disilicide.

## 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 <sup>3</sup> )

### 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**

<b>Eyes/Face</b>	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.
<b>Hand Protection</b>	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).
<b>Skin and Body Protection</b>	<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>
<b>Respiratory Protection</b>	<p>NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN CHLORIDE (GAS) CONCENTRATIONS IN AIR:</p> <p>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.</p> <p>*NIOSH approved acid gas or organic vapour cartridge(s) are required.</p> <p>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.</p> <p>ESCAPE: Gas mask with acid gas canister; or escape-type SCBA.</p> <p>Recommendations apply only to NIOSH approved respirators. Air-purifying respirators do not protect against oxygen-deficient atmospheres.</p>
<b>Thermal Hazards</b>	Not Available

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

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### **Appearance**

<b>Physical State</b>	Fuming liquid
<b>Colour</b>	Colourless or slightly yellow
<b>Odour</b>	Pungent
<b>Odour Threshold</b>	Detectable at 1-5ppm

### **Property**

<b>pH</b>	<1
<b>Melting Point/Freezing Point</b>	-17.4°C (0.7°F)

<b>Initial Boiling Point and Boiling Range</b>	108.6°C (227.4°C)
<b>Flash Point</b>	Not Applicable
<b>Evaporation Rate</b>	Not Available
<b>Flammability</b>	Non-flammable
<b>Upper Flammable Limit</b>	Not Applicable
<b>Lower Flammable Limit</b>	Not Applicable
<b>Vapour Pressure (mm Hg, 20°C)</b>	0.004
<b>Vapour Density (Air=1)</b>	1.3
<b>Relative Density</b>	Not Available
<b>Solubility(ies)</b>	Soluble in water. Soluble in ethanol, methanol, dioxane and tetrahydrofuran; insoluble in hydrocarbons.
<b>Partition Coefficient: n-octanol/water</b>	Log P <sub>ow</sub> = 0.3
<b>Auto-ignition Temperature</b>	Not Applicable
<b>Decomposition Temperature</b>	Not Available
<b>Viscosity</b>	1.16 mPa·s
<b>Explosive Properties</b>	Normally none, but when in contact with metals explosive hydrogen gas may be evolved.
<b>Specific Gravity (Water=1)</b>	1.08
<b>% Volatiles by Volume</b>	Not Available
<b>Formula</b>	HCl
<b>Molecular Weight</b>	36.46

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## Section 10 - Stability and Reactivity

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<b>Reactivity</b>	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.
<b>Stability</b>	Stable, heat and contamination could cause decomposition.
<b>Possibility of Hazardous Reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to Avoid</b>	High temperatures. Incompatibles.
<b>Incompatible Materials</b>	Metals, sodium, bases, formaldehyde, oxidizing agent, reducing agents, perchloric acid, sulfuric acid. Potassium permanganate, aldehydes, epoxides, fluorine, acetylides, borides, carbides, phosphide, silicides, hexalithium disilicide.
<b>Hazardous Decomposition Products</b>	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

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### Acute Toxicity

Component	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalation LC <sub>50</sub>
Hydrochloric Acid (10%)	2.38-2.77 g/kg (rat)	14.5 g/kg (mouse)	4,750 ppm (guinea pig, 4hr)

### Chronic Toxicity – Carcinogenicity

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

<b>Skin Corrosion/Irritation</b>	Corrosive. Capable of producing severe burns, blisters, ulcers and permanent scarring.
<b>Ingestion</b>	Can cause burns to the lips, tongue and stomach; abdominal pain; nausea; vomiting; diarrhea and death.
<b>Inhalation</b>	Hydrochloric acid solutions can readily release high concentrations of hydrogen chloride gas, which is very toxic and corrosive and poses a serious inhalation hazard. Inhalation of even low concentrations is irritating and can cause coughing, pain, inflammation and swelling in the upper respiratory tract.
<b>Serious Eye Damage/Irritation</b>	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.
<b>Respiratory or Skin Sensitization</b>	Hydrochloric acid is not considered an occupational respiratory or skin sensitizer.
<b>Germ Cell Mutagenicity</b>	The available evidence does not indicate that hydrochloric acid is a mutagen.
<b>Reproductive Toxicity</b>	The limited evidence available does not indicate that hydrochloric acid is a developmental toxin.
<b>STOT-Single Exposure</b>	Hydrochloric acid solutions release hydrogen chloride, a corrosive gas. Causes respiratory irritation.
<b>STOT-Repeated Exposure</b>	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).
<b>Aspiration Hazard</b>	Severe exposure can result in pulmonary edema and corrosion of tissues in the nose and throat.
<b>Synergistic Materials</b>	Not Available

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## Section 12 – Ecological Information

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### Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Hydrochloric Acid	EC <sub>50</sub> (Green algae, 72hr): 0.0492 mg/L	LC <sub>50</sub> (Cyprinus carpio (Common carp), 96 hr): 4.92 mg/L	LC <sub>50</sub> (Shrimp, 48hr): 100-300 ppm
<b>Biodegradability</b>	Not Applicable - hydrochloric acid disassociates in water.		
<b>Bioaccumulation</b>	Hydrogen chloride does not accumulate in the food chain.		
<b>Mobility</b>	Hydrogen chloride dissociates into chloride and hydronium ions in moist soil.		
<b>Other Adverse Effects</b>	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.		

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## Section 13 – Disposal Considerations

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**Waste From Residues/Unused Products** Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

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

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## Section 14 – Transport Information

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**UN Number** UN1789

**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 III.

**Special Precautions** Not Available

**Transport in Bulk** Not Available

**Additional Information**

<u>Packing Group</u>	<u>Limited Quantity Index</u>
II	1 L
III	5 L

### 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.

**TDG PRODUCT CLASSIFICATION:** This product has been classified on the preparation date specified at section 14 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.

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## Section 15 – Regulatory Information

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

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## Section 16 – Other Information

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**Preparation Date** November 12, 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<sup>®</sup> 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.

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

**References:**

- 1) CHEMINFO
- 2) eChemPortal
- 3) TOXNET
- 4) Transportation of Dangerous Goods Canada
- 5) HSDB
- 6) ECHA
- 7) PAN

**Advance Chemicals Ltd. - Locations**

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