



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material Name** Hydrochloric Acid (HCl)  
**Revision Date** 12/21/2011  
**Version #** 2  
**Product Use** Acid  
**Manufacturer / Supplier** FRAC TECH SERVICES LLC  
2500 HWY 62 West  
Chickasha, OK 73018  
US  
General information: 1-405-222-2300  
**Emergency** 24 Hour Emergency: INFOTRAC: 1-800-535-5053

## 2. Hazards Identification

**Physical State** Liquid.  
**Appearance** Clear, Colorless to light yellow liquid  
**Emergency Overview** Causes burns to the respiratory tract, skin and eyes. Causes permanent eye damage. May splatter or generate heat when mixed with water. Contact with metals may evolve flammable hydrogen gas.  
**OSHA regulatory status** Not available.  
**Routes of exposure**  
**Eyes** May cause irritation (possibly severe), chemical burns, eye damage, and blindness.  
**Skin** May cause irritation (possibly severe) and chemical burns. Repeated or prolonged exposure to dilute solutions may result in dermatitis. Discoloration of teeth may occur as a result of long term exposure.  
**Inhalation** May cause irritation (possibly severe), chemical burns, and pulmonary edema.  
**Ingestion** Not a likely route of exposure.  
**Potential environmental effects** Not available.

## 3. Composition / Information on Ingredients

Components	CAS #	Percent
Hydrogen Chloride	7647-01-0	3 - 37

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First Aid Measures

### First aid procedures

**Eye Contact** Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. Get medical attention immediately.  
**Skin Contact** Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. Get medical attention immediately.  
**Inhalation** If adverse effects occur, remove to uncontaminated area. Give artificial if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and call for emergency services immediately.  
**Ingestion** Not a likely route of exposure. But if ingested, do not induce vomiting. Immediately give large

quantities of water or milk, if available. If vomiting does occur, give fluids again. Never give anything by mouth to an unconscious person. Call a physician of the nearest Poison Control Center.

**Notes to physician**

Not available.

**5. Fire Fighting Measures**

**Flammable Properties**

Negligible fire hazard.

**Extinguishing media**

**Suitable extinguishing media**

Use media appropriate for surrounding fire.

**Unsuitable extinguishing media**

Not available.

**Specific Hazards arising from the Chemical**

Not available.

**Firefighting equipment / instructions**

Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode.

**Specific Methods**

Keep unnecessary people away, isolate hazard area and deny entry. Move container from fire area if it can be done without risk. Cool non-leaking containers with water. Avoid inhalation of material or combustion by-products. Stand upwind and keep out of low areas.

**Hazardous combustion products**

Hydrogen chloride, Chlorine gas, Hydrogen gas.

**6. Accidental Release Measures**

**Personal precautions**

Wear appropriate personal protective equipment recommended in Section 8 of this MSDS.

**Methods for cleaning up**

Remove sources of ignition. Stop leak if possible without personal risk. Consider evacuation of personnel located downwind if material is leaking. Shut off ventilation system if needed. Completely contain spilled material with dikes, sandbags, etc. Neutralize with soda ash or dilute caustic soda. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck. Keep out of water supplies and sewers. This material is acidic and may lower the pH of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

**7. Handling and Storage**

**Handling**

Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

**Storage**

Store and handle in accordance with all current regulations and standards. Store in rubber-lined steel, acid-resistant plastic or glass containers. Keep container tightly closed. Store in a cool, dry area. Store in a well-ventilated area. Keep away from heat, sparks, and open flames. Keep separated from incompatible substances. Do not store in aluminum container or use aluminum fittings or transfer lines. Protect from physical damage. Dike and vent storage tanks.

**8. Exposure Controls / Personal Protection**

**Occupational exposure limits**

**US. ACGIH Threshold Limit Values**

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrogen Chloride	2 (Ceiling)	Not available.	Not available.	Not available.

**US. OSHA Table Z-1 Limits for Air Contaminates (29 CFR 1910.1000)**

Components	PEL	
	ppm	mg/m3
Hydrogen Chloride	Not available.	7 mg/m3 (Ceiling)

**Canada. Alberta OELs (Occupational Health Safety Code, Schedule 1, Table 2)**

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrogen Chloride	Not available.	Not available.	Not available.	Not available.

**Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)**

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrogen Chloride	Not available.	Not available.	Not available.	Not available.

**Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents) Components**

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrogen Chloride	Not available.	Not available.	Not available.	Not available.

**Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) Components**

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Hydrogen Chloride	Not available.	Not available.	Not available.	Not available.

**Mexico. Occupational Exposure Limit Values**

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3

<b>Engineering controls</b>	Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.
<b>Personal protective equipment</b>	
<b>Eye / face protection</b>	Wear chemical safety goggles with a face shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
<b>Skin protection</b>	Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Always place pant legs over boots.
<b>Respiratory protection</b>	A NIOSH approved full-face respirator equipped with acid gas cartridges (appropriate for hydrogen chloride) may be permissible under certain circumstances where airborne concentrations of hydrogen chloride are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. When the level may be above the IDLH use an SCBA or pressure-demand supplied air with an auxiliary self-contained escape pack. Pressure-demand SCBA (self-contained breathing apparatus) must be used when there is a potential release of unknown concentrations. A respiratory protection program that meets 29 CF 1910.134 must be followed whenever workplace conditions warrant use of a respirator.
<b>General hygiene consideration</b>	Not available.

## 9. Physical and Chemical Properties

<b>Appearance:</b>	Clear, colorless to light yellow liquid.
<b>Color</b>	Colorless to light yellow
<b>Odor</b>	Irritating, Pungent, Sharp
<b>Odor threshold</b>	0.3 ppm
<b>Physical State</b>	Liquid
<b>Form</b>	Liquid
<b>pH</b>	2 (0.2% solution)
<b>Melting point</b>	Not available.
<b>Freezing point</b>	-29 to -5 ° F ( -34 to -15 °C)
<b>Boiling point</b>	140 to 221 °F (60 to 105 °C)
<b>Flash point</b>	Not flammable
<b>Evaporation rate</b>	< 1.00 (butyl acetate = 1)
<b>Flammability limits in air, upper, % by volume</b>	Not applicable.
<b>Flammability limits in air, lower, % by volume</b>	Not applicable.
<b>Vapor pressure</b>	14.6 – 80 mmHg @ 20°C
<b>Vapor density</b>	1.3 @ 20 °C
<b>Specific Gravity</b>	1.05 – 1.18
<b>Solubility (water)</b>	Complete
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.

<b>Decomposition temperature</b>	Not available.
<b>Bulk Density</b>	8.75 – 9.83 lb/gal
<b>VOC</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Percent volatile</b>	Not available.

## 10. Chemical Stability Reactivity Information

<b>Chemical Stability</b>	Stable at normal temperatures and pressures.
<b>Conditions to avoid</b>	Avoid heat, flames, sparks and other sources of ignition. Avoid contact with water. Will react with some metals forming flammable hydrogen gas. Hydrogen chloride may react with cyanide, forming lethal concentrations of hydrocyanic acid. Avoid contact with incompatible materials.
<b>Incompatible material</b>	Metals, alkalis, oxidizing agents, mercuric sulfate, perchloric acid, carbides of calcium, cesium, rubidium, acetylides of cesium and rubidium, phosphides of calcium and uranium, and lithium silicide.
<b>Hazardous decomposition products</b>	Chlorine, Hydrogen chloride, Hydrogen gas.
<b>Possibility of hazardous reaction</b>	Hazardous polymerization will not occur.

## 11. Toxicology Information

### Toxicological Data

<b>Components</b>	<b>Test Results</b>
Hydrogen Chloride	LD50 Oral, Rat: 700 mg/kg LD50 Oral, Rabbit: 900 mg/kg LC50 Inhalation, Rat: 3124 ppm (1 hr) LD50 Dermal Rabbit: 5010 mg/kg

**Sensitization** Not available.

### Carcinogenicity

Hydrogen Chloride This product is not classified as a carcinogen by NTP, IARC, or OSHA.

**Epidemiology** Not available.

**Mutagenicity** Not available.

**Reproductive effects** Not available.

**Teratogenicity** Not available.

**Further Information** Inhalation will cause severe irritation and possible burns with coughing and choking. If inhaled deeply, edema and hemorrhage of the lungs may occur. Prolonged exposure may cause discoloration and/or erosion of teeth. Contact with eye causes immediate severe irritation with possible burns, permanent visual impairment, or total loss of sight. Skin contact with this material may cause severe irritation and corrosion of tissue. Ingestion may cause immediate burns of the mouth, esophagus, and stomach. Ingestion may cause intense pain, nausea, vomiting, bleeding, circulatory system collapse, shock and death.

## 12. Ecological Information

## Ecotoxicological data

### Components

Hydrogen Chloride

### Test Results

LC50 Gambusia affinis: 282 mg/L 96hr  
LC50 Goldfish: 178 mg/L (1 to 2 hour survival time)  
LC50 Bluegill: 3.6 mg/L 48hr  
LC50 Shrimp: 100 – 330 mg/L

### Ecotoxicity

Not available.

### Persistence and degradability

This material is believed not to persist in the environment. This material is believed to exist in the disassociated state in the environment. If released to soil, hydrogen chloride will sink into the soil. The acid will dissolve some soil material (in particular, anything with a carbonate base) and will be somewhat neutralized. The remaining portion is thought to transport downward to the water table. If released to water, it dissociated almost completely and will be neutralized by natural alkalinity and carbon dioxide.

### Bioaccumulation / Accumulation

Not available.

### Mobility in environmental media

Not available.

### Partition coefficient (n-octanol/water)

Not available.

## 13. Disposal Considerations

### Waste codes

Hazardous Waste Number: D002.

### Disposal instructions

Reuse or reprocess, if possible. Dispose in accordance with all applicable regulations. May be subject to disposal regulations: US EPA 40 CFR 261.

### Contaminated packaging

Not available.

## 14. Transport Information

### DOT

UN number	UN1789
Proper shipping name	Hydrochloric Acid Solution
Hazard class	8
Packing Group	II
Labels required	II
DOT reportable quantity	5000
Additional information	
Special provisions	
Packaging exceptions	
Packaging non bulk	
Packaging bulk	
ERG number	

### IATA

UN number	
Proper shipping name	
Hazard class	
Packing group	
Additional information	

ERG code

**IMDG**

UN number

Proper shipping name

Hazard class

Packing group

EmS No

IMDG Additional information:

**15. Regulatory Information**

**US federal regulation**

**CERCLA (Superfund) Reportable Quantity:** Hydrogen Chloride: 5000lb

**Superfund amendments and Reauthorization Act of 1986 (SARA)**

<b>Hazard Categories</b>	Immediate Hazard:	Yes
	Delayed Hazard:	No
	Fire Hazard:	No
	Pressure Hazard:	No
	Reactivity Hazard:	Yes

EPCRA Extremely Hazardous Substance reportable quantities:  
Hydrogen Chloride: 5000lb liquid, 500 lb (TPQ gas only)

Section 302 extremely hazardous substance: None

Section 311 hazardous chemical: Hydrogen Chloride

**Inventory Status**

<b>Country</b>	<b>Inventory Name</b>	<b>On Inventory *</b>
Australia	AICS	No
Canada	DSL	No
Canada	NDSL	No
China	IECSC	No
Europe	EINECS	No
Europe	ELINCS	No
Japan	ENCS	No
Korea	ECL	No
New Zealand	NZI	No
United States / Puerto Rico	TSCA	Yes
Phillipines	PICCS	No

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

**WHMIS Information** Not available.

**State Regulation** Hydrogen Chloride is listed on the following State's Right to Know Lists:  
Massachusetts  
New Jersey ( Right to know, special health hazards, environmental hazard)  
Pennsylvania (Right to know hazardous, and environment)  
Rhode Island

## 16. Other Information

### Further Information

HMIS® is a registered trade and service mark of the NPCA.

### HMIS® ratings

Health: 3  
Flammability: 0  
Physical Hazard: 1

A HMIS® rating including an \* indicates a chronic hazard.

### NFPA ratings

Health: 3  
Flammability: 0  
Instability: 1

### Disclaimer

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### Issue Date

12/21/2011