



Health	3
Fire	0
Reactivity	0
Personal Protection	

## Material Safety Data Sheet

### Hydrochloric Acid, 2% (1 + 49) MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Hydrochloric Acid, 2% (1 + 49)  
**Catalog Codes:** SLH3133  
**CAS#:** Mixture.  
**RTECS:** Not applicable.  
**TSCA:** TSCA 8(b) inventory: Hydrochloric acid; Water  
**CI#:** Not available.  
**Synonym:** Hydrochloric Acid, 2% (1 + 49) Solution  
**Chemical Name:** Not applicable.  
**Chemical Formula:** Not applicable.

**Contact Information:**  
**Sciencelab.com, Inc.**  
 14025 Smith Rd.  
 Houston, Texas 77396  
 US Sales: **1-800-901-7247**  
 International Sales: **1-281-441-4400**  
 Order Online: [ScienceLab.com](http://ScienceLab.com)  
**CHEMTREC (24HR Emergency Telephone), call:**  
 1-800-424-9300  
**International CHEMTREC, call:** 1-703-527-3887  
**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Hydrogen chloride	7647-01-0	0.74
Water	7732-18-5	99.3

**Toxicological Data on Ingredients:**

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

**CARCINOGENIC EFFECTS:** Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, , teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic

eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** of metals

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Non-combustible

**Special Remarks on Explosion Hazards:** Not available.

#### Section 6: Accidental Release Measures

**Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:**

Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

### Precautions:

Keep container dry. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

### Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

Hydrogen chloride STEL: 7.5 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] STEL: 5 (ppm) from ACGIH (TLV) [United States] CEIL: 5 (ppm) from NIOSH CEIL: 7.5 (mg/m<sup>3</sup>) from NIOSH CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Clear Colorless.

**pH (1% soln/water):** Neutral.

**Boiling Point:** The lowest known value is 100°C (212°F) (Water).

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** The only known value is 1 (Water = 1) (Water).

**Vapor Pressure:** The highest known value is 2.3 kPa (@ 20°C) (Water).

**Vapor Density:** The highest known value is 0.62 (Air = 1) (Water).

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, diethyl ether.

**Solubility:**

Easily soluble in cold water, hot water. Soluble in diethyl ether.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials

**Incompatibility with various substances:** Slightly reactive to reactive with oxidizing agents, organic materials, metals, alkalis.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Isolate hydrogen chloride from heat, direct, alkalis (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid (increase in temperature and pressure) Hydrogen chloride causes aldehydes and epoxides to violently polymerize. It reacts with oxidizers releasing chlorine gas. Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothermic reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the following can cause explosion or ignition on contact or other violent/vigorous reaction: Acetic anhydride, Alcohols + hydrogen cyanide, Aluminum, Aluminum phosphide, Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium, Ammonium hydroxide, 1,4-Benzoquinone diimine, Calcium acetylide (incandescence upon warming), Calcium carbide, Calcium phosphide, Carbon tetrachloride + silver perchlorate (produce trichloromethyl perchlorate), Cesium acetylene carbide, Cesium carbide, Cesium telluroacylates, Chlorine + dinitroanilines (evolves gas), Chloroacetaldehyde oxime, Chlorosulfonic acid, Cyanogen chloride (when catalyzed by HCl), 1,1-Difluoroethylene, Dinitroanilines, Ethylene, Ethylene diamine, Ethyl 2-formylpropionate oxime (when generated by using HCl as a catalyst), Ethylene imine, Fluorine, HClO<sub>4</sub>, Hexalithium disilicide, Hydrogen peroxide, Lithium silicide, Metal acetylides, carbides, Magnesium boride, Methyl vinyl ether, Mercuric sulfate, Nitric acid + glycerol, Oleum, Perchloric acid, Potassium, Potassium permanganate, beta-Propiolactone, Propylene oxide, Rubidium acetylide, Rubidium carbide, Rubidium acetylene carbide, Silicon dioxide, Silver chlorite, Sodium (with aqueous HCl), Sodium 2-allyloxy-6-nitrophenylpyruvate oxime, Sodium hydroxide, Sodium tetraselenium, Sulfonic acid, Sulfuric acid, Tetraselenium tetranitride, 2,4,6-Tri(2-acetylhydrazino)-1,3,5-trinitrobenzene, Uranium phosphide, Vinyl acetate. Hydrogen chloride gas can react with formaldehyde to form bis(chloromethyl)ether, a human carcinogen. Most metals, as well as certain coatings, plastics, and rubbers, are attacked by hydrogen chloride. Addition of hydrochloric acid to the following results in an exothermic reaction: Cesium cyanotridecahydrodecarborate(2-), Potassium ferricyanide, Vinylidene fluoride. Addition of hydrochloric acid to potassium ferrocyanide or ammonium hexacyanoferrate(II) results in an endothermic reaction. Hydrochloric acid in the presence of alcohol and glycols results in dehydration reactions. (Hydrogen chlorid

**Special Remarks on Corrosivity:**

This compound is highly corrosive when in solution (especially to most metals except: gold, mercury, platinum, silver, and tantalum). The anhydrous gas is not corrosive. (Hydrogen chloride)

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:**

**CARCINOGENIC EFFECTS:** Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. Contains material which may cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, , teeth.

**Other Toxic Effects on Humans:**

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation and burns. Inhalation: Causes respiratory tract irritation with choking sensation, and possible burns of the respiratory tract musoca, and may affect respiration/lungs (acute pulmonary edema). May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. May affect the liver and sense organs (nose, eyes). Ingestion: May be fatal if swallowed. Causes irritation and may cause burning, ulceration, or perforation of the gastrointestinal tract. Can cause nausea, vomitting, and diarrhea. May affect behavior, the cardiovascular system, and urinary system (kidneys). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: Prolonged or repeated inhalation or ingestion may affect liver, respiratory tract (chronic bronchitis), teeth (yellowing of teethand erosion of tooth enamel), kidneys, and behavior, Prolonged or repeated skin contact may cause dermatitis. (Hydrochloric Acid)

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14: Transport Information

**DOT Classification:** Class 8: Corrosive material

**Identification:** : Hydrochloric Acid Solution UNNA: 1789 PG: III

**Special Provisions for Transport:** Not available.

### Section 15: Other Regulatory Information

**Federal and State Regulations:**

Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid; Water TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid 2% CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg);

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):** CLASS E: Corrosive liquid.

**DSCL (EEC):**

R34- Causes burns. S24/25- Avoid contact with skin and eyes. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of water. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:**

**National Fire Protection Association (U.S.A.):**

**Health:** 1

**Flammability:** 0

**Reactivity:** 1

**Specific hazard:**

**Protective Equipment:**

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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