



GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">1</td> </tr> </table>	Health Hazard	3	Fire Hazard	0	Reactivity	1	
Health Hazard	3							
Fire Hazard	0							
Reactivity	1							
See Section 15.								

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/ Trade Name	Hydrochloric acid	Catalog Number(s). H1307, H1035, H1037, H1038, H1039
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# Mixture.
Commercial Name(s)	Not available.	RTECS MW4025000
Synonym	Hydrochloric Acid; Muriatic Acid	TSCA TSCA 8(b) inventory: Hydrochloric acid
Chemical Name	Not applicable.	CI# Not applicable.
Chemical Family	Inorganic acid. (Acid.)	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	Not applicable.	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		<i>Exposure Limits</i>			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Hydrogen chloride	7647-01-0		5	5	20-38
2) Water	7732-18-5				62-80
Toxicological Data on Ingredients	Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].				

Section 3. Hazards Identification	
Potential Acute Health Effects	<p>Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. 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. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.</p>

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Potential Chronic Health Effects	<p>Slightly hazardous in case of skin contact (sensitizer).</p> <p>CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid].</p> <p>MUTAGENIC EFFECTS: Not available.</p> <p>TERATOGENIC EFFECTS: Not available.</p> <p>DEVELOPMENTAL TOXICITY: Not available.</p> <p>The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.</p> <p>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. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p>
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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 immediate 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. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
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	<p>Non combustible.</p> <p>Calcium carbide reacts with hydrogen chloride gas with incandescence.</p> <p>Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine.</p> <p>Rubidium acetylene carbides burns with slightly warm hydrochloric acid.</p> <p>Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved.</p> <p>Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammable gas.</p> <p>Cesium acetylene carbide burns hydrogen chloride gas.</p> <p>Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute.</p> <p>Reacts with most metals to produce flammable Hydrogen gas.</p>

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Special Remarks on Explosion Hazards Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4, Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

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. If necessary: **Neutralize the residue with a dilute solution of sodium carbonate.**

Large Spill Corrosive liquid. Poisonous 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. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. **Neutralize the residue with a dilute solution of sodium carbonate.** 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 locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture.

May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

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. Ensure that eyewash stations and safety showers are proximal to the work-station location.

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
 CEIL: 5 (ppm) from OSHA (PEL) [United States]
 CEIL: 7 (mg/m³) from OSHA (PEL) [United States]
 CEIL: 5 from NIOSH
 CEIL: 7 (mg/m³) from NIOSH
 TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)]
 TWA: 2 STEL: 8 (mg/m³) [United Kingdom (UK)]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Pungent. Irritating (Strong.)
Molecular Weight	Not applicable.	Taste	Not available.
1% soln/water)	Acidic.	Color	Colorless to light yellow.

Boiling Point 108.58 C @ 760 mm Hg (for 20.22% HCl in water)
 83 C @ 760 mm Hg (for 31% HCl in water)
 50.5 C (for 37% HCl in water)

Melting Point	-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water)
Cal Temperature	Not available.
Specific Gravity	1.1- 1.19 (Water = 1) 1.10 (20%and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38%HCl solutions)
Vapor Pressure	16 kPa (@ 20°C) average
Vapor Density	1.267 (Air = 1)
Volatility	Not available.
Odor Threshold	0.25 to 10 ppm
Water/Oil Dist. Coeff.	Not available.
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, diethyl ether.
Solubility	Soluble in cold water, hot water, diethyl ether.

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Incompatible materials, water
Compatibility with various substances	Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.
Corrosivity	Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.
Special Remarks on Reactivity	<p>Reacts with water especially when water is added to the product.</p> <p>Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C.</p> <p>Sodium reacts very violently with gaseous hydrogen chloride.</p> <p>Calcium phosphide and hydrochloric acid undergo very energetic reaction.</p> <p>It reacts with oxidizers releasing chlorine gas.</p> <p>Incompatible with, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates.</p> <p>Reacts with most metals to produce flammable Hydrogen gas.</p> <p>Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalies (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure)</p> <p>Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid.</p> <p>Adsorption of Hydrochloric Acid onto silicon dioxide results in exothermic reaction.</p> <p>Hydrogen chloride causes aldehydes and epoxides to violently polymerize.</p> <p>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, HClO₄, Hexalithium disilicide, Hydrogen peroxide, Metal acetylides, carbides, Magnesium boride, Methyl vinyl ether, Mercuric sulfate, Nitric acid + glycerol, Oleum, Perchloric acid, Potassium, Potassium permanganate, beta-Propioactone, 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.</p>

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	<p>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.</p>
Special Remarks on Corrosivity	<p>Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinum, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze</p>
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation.
Toxicity to Animals	<p>Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat].</p>
Chronic Effects on Humans	<p>CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.</p>
Other Toxic Effects on Humans	<p>Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).</p>
Special Remarks on Toxicity to Animals	<p>Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M</p>
Special Remarks on Chronic Effects on Humans	<p>May cause adverse reproductive effects (fetotoxicity). May affect genetic material.</p>
Special Remarks on other Toxic Effects on Humans	<p>Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjunctivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and laryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well as headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomiting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophageal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: Prolonged or repeated inhalation and/or ingestion may affect liver, bleeding of nose and gums, nasal and oral mucosal ulceration, conjunctivitis, respiratory tract (changes in pulmonary function, chronic bronchitis, overt respiratory tract abnormalities), teeth (yellowing of teeth and erosion of tooth enamel), kidneys, and behavior (muscle contraction or spasticity). Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact with vapor/mist can cause conjunctivitis</p>


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 products of degradation are less toxic than the product itself.
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.
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Section 14. Transport Information

DOT Classification	Class 8: Corrosive material
Identification	: Hydrochloric acid, solution UNNA: 1789 PG: II
Special Provisions for Transport	Not available.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

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 California Director's List of Hazardous Substances: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid 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 CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg)
California Proposition 65 Warnings	California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found. California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.
Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
Other Classifications	WHMIS (Canada) CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

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DSCL (EEC)

R34- Causes burns.
R37- Irritating to respiratory system.

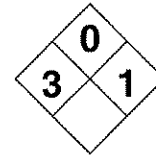
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.)

Health Hazard	3
Fire Hazard	0
Reactivity	1
Personal Protection	0

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

Health



Flammability

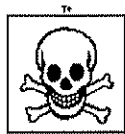
Reactivity

Specific hazard

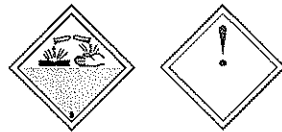
WHMIS (Canada) (Pictograms)



DSCL (Europe) (Pictograms)



TDG (Canada) (Pictograms)



ADR (Europe) (Pictograms)



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

MSDS Code H3290

References

- Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
- SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.
- The Sigma-Aldrich Library of Chemical Safety Data, Edition II.
- Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité international Ltée. 1986.

Other Special Considerations

Not available.

Validated by Sonia Owen on 7/28/2005.

Verified by Sonia Owen.

Printed 8/10/2005.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.