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Chemtrec: 800-424-9300

PRODUCT CODE # 4010
PRODUCT NAME: MURIATIC ACID

MATERIAL
SAFETY DATA
SHEET
2/11/08

Section I - Chemical Product And Company Identification

Synonyms/Common Names: Muriatic Acid, Hydrogen Chloride Solution, Hydrochloric Acid, HCl

CAS Number: 7647-01-0

HMIS HAZARD RATINGS: Health Hazard: 3 Fire Hazard: 0 Reactivity: 0

Section II - Regulated Ingredients

Chemical Name	CAS Number	%	Exposure Limits (TWAs) in Air		
			ACGIH TLV	OSHA PEL	STEL
Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	31.45	5 ppm	5 ppm	N/A

Section III - Hazard Identification

Routes of Exposure: This product may affect the body either through ingestion, inhalation, or contact with the eyes and/or skin.

Summary of Acute Health Hazards

Ingestion: Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

Inhalation: Vapors have an irritating effect on the respiratory tract causing coughing, burning of the throat, choking sensation, bronchitis, and pulmonary edema.

Skin: May produce irritation and burns of the skin and mucous membranes, the severity being determined by concentration and duration of exposure.

Eyes: Contact with the eyes may cause severe burns. Unless removed quickly by thorough irrigation with water, prolonged or permanent visual impairment or loss of sight may result.

Summary of Acute Health Hazards: Respiratory distress, irritation of mucosa lining.

Summary of Chronic Health Hazards: Repeated skin contact with concentrated and dilute solutions may cause dermatitis. May cause inflammation of nose, throat, and larynx. Chronic bronchitis and gastritis have also been reported.

Effects of Overexposure: N/A

Medical Conditions Generally Aggravated by Exposure: Hydrogen chloride (Hydrochloric Acid) is a respiratory irritant. Persons with impaired pulmonary function may be at increased risk from exposure. Periodic surveillance is indicated.

Note to Physicians: Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

Section IV - First Aid Measures

Ingestion: If person is conscious, immediately administer large quantities of water. Do Not Induce Vomiting. GET PROMPT MEDICAL ATTENTION.

Inhalation: Move the exposed person to fresh air at once and administer 100% oxygen @ 6 liters per minute, for 15 to 30 minutes. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. GET MEDICAL ATTENTION AS SOON AS POSSIBLE.

Skin: Immediately flush contaminated skin with water and wash with soap and water. If large areas of the body are contaminated or if clothing is penetrated, immediately use safety shower preferably removing clothing while under the shower. Flush exposed areas with large amounts of water for at least 30 minutes. Keep affected area cool. GET PROMPT MEDICAL ATTENTION. Wash clothing before reuse. Destroy contaminated shoes.

Eyes: Immediately flush eyes with a directed stream of water for at least 15 minutes. Forcibly hold eyelids apart to ensure complete irrigation of all eye and lid tissue. Do not use chemical antidotes. Speed is essential. GET IMMEDIATE MEDICAL ATTENTION.

Section V - Fire Fighting Measures

Flash Point: N/A

Autoignition Temperature: N/A

Lower Explosive Limit: N/A

Upper Explosive Limit: N/A

Unusual Fire and Explosion Hazards: Reacts with active metals (potassium, sodium, calcium, powdered aluminum, zinc, magnesium) to produce flammable hydrogen gas. May also form hydrogen chloride, and acid vapors. Explosive concentrations of hydrogen may accumulate inside metal equipment.

Extinguishing Media: Use water spray, fog, alcohol-resistant foam, dry chemicals, CO₂, or other agents as appropriate for surrounding fire. Neutralize with soda ash or slaked lime. Do NOT use straight streams of water. Most foams will react with the material and release corrosive/toxic gases.

Special Firefighting Procedures: Use self-contained breathing apparatus and full protective equipment.

Section VI - Accidental Release Measures

Use personal protective equipment (PPE).

Small Spill: Cover the contaminated surface with sodium carbonate, soda ash or lime. Mix and add water, if necessary, to form slurry. Scoop up slurry and wash site with sodium bicarbonate solution. Do not flush to sewer. Do not allow runoff into ditches which lead to waterways.

Large Spill: Evacuate persons from area that are not equipped with proper protective equipment. Dike to prevent spreading. Do not flush to sewer. Do not allow runoff into ditches which lead to waterways.

Section VII - Handling and Storage

Store in a cool, dry, well-ventilated area away from heat and oxidizing agents. Use equipment designed for acid service for handling and storage. Contents may develop

pressure upon prolonged exposure. Do not store in direct sunlight. Do not store in metal containers. Store protected from moisture. Do not breathe vapor or mist.

Section VIII - Exposure Controls/Personal Protection

Respiratory Protection: Use approved organic vapor acid-gas respirator for areas where airborne exposure is excessive.

Ventilation: Provide good general room ventilation to minimize exposure. Use local exhaust ventilation at points of vapor emission. System should be discharged into absorption media.

Protective Clothing: Wear protective gloves such as rubber or neoprene to minimize skin contact. Use of rubberized coveralls and rubber shoes are suggested. Wash thoroughly after use. In case of emergency, or where there is a possibility of considerable exposure, wear complete acid suit with hood and forced air or self contained breathing apparatus.

Eye Protection: Wear safety glasses with side shields or chemical goggles. Person subject to hydrochloric acid exposure should not wear contact lenses.

Other Protective Clothing or Equipment: Eye wash and safety shower should be in close proximity.

Work/Hygienic Practices: All employees who handle this product should wash their hands before eating, drinking, smoking, or using toilet facilities.

Section IX - Physical and Chemical Properties

Physical State: Liquid

pH: 1.0

Melting Point/Range: -74°C; 101.2°F

Boiling Point/Range: 183°F; 83°F

Appearance/Color/Odor: Clear, odorless to slightly yellow liquid with a sharp, pungent, irritating odor.

Solubility in Water: 45%

Vapor Pressure (mmHg): 84 @ 20°C

Specific Gravity (Water=1): 1.16-1.19

Molecular Weight: 36.46

Vapor Density (Air=1): 1.27

% Volatiles (by volume): 100

How to detect this compound : N/A

Section X - Stability and Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur

Conditions to Avoid: Heat or fire, runoff to sewer, inhalation of gas, sparks where hydrogen may be present.

Materials to Avoid: Contact with metals and strong oxidizers. Reacts exothermically with alkalis, metal oxides, amines, active metals carbonates, and sulfides. Reacts with oxidizers to give chlorine gas. Reacts with cyanides to give hydrogen cyanide gas. Reacts with sulfides to give hydrogen sulfide gas. Reacts with formaldehyde to give bischloromethyl ether (an OSHA regulated carcinogen). Reacts with amines to form ammonia. Reacts with carbonates to form carbon dioxide. Other materials to avoid are: Bases, acetic anhydride, alkali metals, aluminum, copper, copper alloys, fluorine, iron, sodium hydroxide, steel, sulfuric acid, vinyl acetate, zinc, potassium permanganate,

cesium acetylene carbide, rubidium acetylene carbide, rubidium carbide, sodium, chlorosulfonic acid, oleum carbonates, perchloric acid, calcium phosphide, metal oxides, acetates, cesium carbide, beta-propiolactone, ethyleneimine, propylene oxide, lithium silicides, alcohols + hydrogen cyanide, 2-aminoethanol, ammonium hydroxide, calcium carbide, 1,1-difluoroethylene, ethylene diamine, magnesium boride, mercuric sulfate, silver perchlorate + carbon tetrachloride, uranium phosphide.

Hazardous Decomposition Products: Flammable hydrogen gas can be produced by the reaction with most metals. Chlorine will be released by mixing with strong oxidizers. Hydrogen chloride, carbon monoxide, carbon dioxide.

Section XI - Toxicological Information

Oral, rat: LD50 = > 90 mL / kg; Oral, rabbit: LD50 = 900 mg / kg.

Section XII - Ecological Information

Rapidly hydrolyzes when exposed to water. Will exhibit extensive evaporation from soil surfaces. Upon transport through the soil, hydrochloric acid will dissolve some of the soil materials (especially those with carbonate bases) and the acid will neutralize to some degree.

Section XIII - Disposal Considerations

Dispose of spilled or wasted product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all local, state and federal regulations.

Section XIV - Transport Information

DOT Proper Shipping Name: Hydrochloric Acid, Solution, 8, UN1789, PGII

DOT Hazard Class/ I.D. No.: 8, UN1789, II

For all transportation accidents, call CHEMTREC at 800-424-9300.

Section XV - Regulatory Information

Reportable Quantity: 5000 Pounds (2270 Kilograms) (527.42 Gals)

NFPA Rating: Health - 3; Fire - 0; Reactivity - 0

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Uniform Fire Code Rating: Class 3 Water-Reactive Material.

Carcinogenicity Lists: No NTP: No OSHA Regulated: No

IARC Monograph: Hydrogen Chloride - Group 3 Carcinogen

Section 313 Supplier Notification: This product contains the following toxic chemical(s) subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To Know Act of 1986 and of 40 CFR 372:

<u>CAS #</u>	<u>Chemical Name</u>	<u>% By Weight</u>
7647-01-0	Hydrochloric Acid (Hydrogen Chloride)	31.45%

Section XVI - Other Information

Hydrochloric Acid contains approx. 30-35% Hydrogen Chloride

Chemical Family/Type: Inorganic Acid

Sections changed since last revision: II, III, V, VII, IX, XI, XV, XVI

IMPORTANT! Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This MSDS has been prepared according to the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The MSDS information is based on sources believed to be reliable.

However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, **Alden Leeds, Inc** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Also, additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks prior to use, and then to exercise appropriate precautions for protection of employees and others.