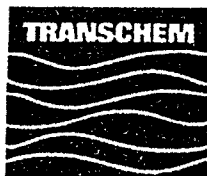


MATERIAL SAFETY DATA SHEET : HYDROCHLORIC ACID



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SECTION 1 NAME & HAZARD SUMMARY

Material name: HYDROCHLORIC ACID

Common names: HCL, Hydrogen chloride, Muriatic acid

Hazard Summary (OSHA Hazard Communication Standard 29CFR1910.1200)

Physical hazards: None

Health hazards: Inhalation (TLV), Corrosive (skin, eye, respiratory passages), harmful (lung injury).

Read the entire MSDS for a more thorough evaluation of the hazards

SECTION 2 INGREDIENTS

| CHEMICAL | CAS# | % | TLV(ACGIH) | PEL(OSHA) |
|-------------------|------------|--------------|---------------|---------------|
| Hydrogen chloride | 7647-01-0 | 32.0 to 36.7 | 5ppm, Ceiling | 5ppm, Ceiling |
| Water | Not listed | 68.0 to 63.3 | Not listed | Not listed |

Ingredients not precisely identified are proprietary or non-hazardous. All ingredients appear on the EPA TSCA Inventory. Values are not product specifications. ca = approximately, > = greater than, < = less than.

SECTION 3 PHYSICAL DATA

Boiling point: ca 230°F, 110°C

Vapor density (air = 1): 1.2

Solubility in water: Complete (in all proportions)

% Volatile by volume: 100

Vapor pressure (mmHg at 70°F): 25.8

Specific gravity: 1.1-1.2

pH: < 1

Appearance and odor: Clear, colorless, or slightly yellow, fuming liquid with sharp, irritating odor.

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

Flash point (and method): Does not flash.

Autoignition temperature: No data

Flammable limits (STP): Not applicable

LEL: None

UEL: None

Extinguishing media: Not applicable. Use media suitable for surrounding fire.

Special fire fighting protective equipment: Self-contained breathing apparatus with full face piece and protective clothing if involved in a fire of other materials.

Unusual fire and explosion hazards: Reacts with many metals to produce flammable hydrogen gas.

SECTION 5 REACTIVITY DATA

Stability: Stable under normal conditions.

Incompatibility (materials to avoid): Alkaline materials. Reacts with many metals to produce flammable hydrogen gas.

Hazardous decomposition products: Hydrogen.

Hazardous polymerization: Will not occur.

SECTION 6 HUMAN HEALTH HAZARD ASSESSMENT

General: The health hazard assessment is based on an evaluation of the chemical composition together with information from a search of the scientific literature and other commercial sources.

Carcinogenicity: NTP: No

IARC: No

OSHA reg : No

Oral ingestion: Harmful and may be fatal. Causes severe irritation of the mouth, pharynx, esophagus, and stomach with consequent pain, nausea, and vomiting.

Eye contact: Liquid and vapor may cause severe burns to eyes.

Skin contact: Liquid and vapor may cause severe burns to exposed skin.

Skin absorption: Not a systemic poison. Skin absorption is not likely to occur.

Section 1
Identification



| | |
|--------------|-----|
| HEALTH | (3) |
| FLAMMABILITY | (0) |
| REACTIVITY | (1) |
| ENVIRONMENT | (2) |

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Inhalation: Warning properties are good. Inhalation of vapors may cause coughing and difficult breathing, resulting in inflammation, ulceration of nose, ulceration of throat.

Effects of overexposure: Inhalation of vapors may cause pulmonary edema, circulatory system collapse, damage to upper respiratory system. Inhalation of vapors may cause coughing and difficulty in breathing. Liquid may cause severe burns to eyes and skin. Ingestion is harmful and may be fatal. Will cause severe burns to mouth and stomach.

First aid procedures: CALL A PHYSICIAN !

Eyes: Immediately flush with plenty of water for at least 15 minutes and have eyes examined and treated by medical personnel.

Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and footwear. If redness, itching or a burning sensation develops, get medical attention.

Ingestion: DO NOT induce vomiting; if conscious, give water, milk, or milk of magnesia. (Never give anything by mouth to an unconscious person).

Inhalation: Remove victim to fresh air. If not breathing, clear airway and start mouth-to-mouth artificial respiration. If breathing is difficult give oxygen and get medical attention. If a cough or other respiratory symptoms develop, consult medical personnel.

Note to physician: Mucosal injury following ingestion of this potentially corrosive material may contraindicate the induction of vomiting in the treatment of possible intoxication. Similarly, if gastric lavage is performed, intubation should be done with great care. In cases of severe esophageal chemical corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with scrupulous monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also of high importance. Pre-existing lung disease may be aggravated by exposure.

SECTION 7 SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Wear skin, eye, and respiratory protection during clean-up. Stop leak if you can do without risk. Contain spill. Keep out of sewers and drains. Soak up and neutralize material with absorbent such as sodium bicarbonate, soda ash or lime. With clean shovel, carefully place material into clean, dry container and cover; remove from area. Wash residue from spill area with water and flush to a sewer serviced by a wastewater treatment facility. For transportation spill, call Chemtrec (Chemical Transportation Emergency Center), (800)424-9300.

Disposal method: Because its pH is 2 or below, discarded material is a hazardous waste. Dispose of in a facility permitted for hazardous waste.

EPA Hazardous Waste Number: D002 (CORROSIVE WASTE)

Container disposal: Empty container retains hazardous residue. Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product. Remove hazardous residue and puncture or otherwise destroy empty container before disposal.

SECTION 8 SPECIAL PROTECTION INFORMATION

TLV or suggested control value: ACGIH TLV and OSHA PEL for hydrogen chloride is 5 ppm ceiling.

Ventilation: Use local exhaust to keep exposures to a minimum.

Respiratory protection (specify type): If needed, used MSHA/NIOSH respirator approved for acid gases.

Protective clothing: Take all precautions to avoid skin contact. Outside clothing of acid resistant fabrics are recommended. Rubber gloves and boots (rubbers over leather), aprons and arm covers should be worn for protection against accidental contact. Additional protection, such as full body suit, may be required depending on conditions.

Eye protection: Chemical tight goggles; full faceshield in addition if splashing is possible.

Other protective equipment: Safety shower and eyewash station in work area.

SECTION 9 SPECIAL PRECAUTIONS OR OTHER COMMENTS

Precautions to be taken in handling or storing: Prevent eye and skin contact. Observe TLV/PEL limitations. Avoid breathing vapors or aerosols.

SECTION 10 REGULATORY INFORMATION

TSCA (Toxic Substance Control Act) Regulations, 40CFR 710: All ingredients are on the TSCA Section 8(b) Inventory.

CERCLA and SARA Regulations, 40CFR 355, 370, and 372: This product contains the following chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40CFR 372:

| Chemical | CAS # | % |
|-------------------|-----------|------|
| Hydrochloric acid | 7647-01-0 | ca30 |

State Regulations: California Proposition 65: No warnings are necessary.

The information herein is given in good faith but no warranty, expressed or implied, is made.

Emergency Contact: Chemtrec 1/800/424-9300