

Hydrochloric Acid 6N
89586

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Hydrochloric Acid 6N

Catalog Numbers:

LC153702, NC9655538, NC9727995, SA56, SA56-200, SA561, SA56200, SA564,
SA56500, XX43701LI, XXAS437020LI, XXHCL6.0NPD20L

Synonyms:

Muriatic acid; Chlorohydric acid; Hydrogen chloride; Spirits of salt

Company Identification: Fisher Scientific

1 Reagent Lane
Fairlawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

| CAS# | Chemical Name | % | EINECS# |
|-----------|-------------------|---------|-----------|
| 7647-01-0 | Hydrogen chloride | 51.5 | 231-595-7 |
| 7732-18-5 | Water | Balance | 231-791-2 |

Hazard Symbols: T C

Risk Phrases: 23 35

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: colorless to slight yellow.

Danger! Corrosive. Mutagen. May be harmful if swallowed. May cause fetal effects based upon animal studies. Causes eye and skin burns.

May cause severe respiratory tract irritation with possible burns.

May cause severe digestive tract irritation with possible burns.

Possible sensitizer.

Target Organs: Respiratory system, teeth, eyes, skin, circulatory system.

Potential Health Effects

Eye:

May cause irreversible eye injury. Vapor or mist may cause irritation and severe burns. Contact with liquid is corrosive to the eyes and causes severe burns. May cause painful sensitization to light.

Skin:

May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Contact with liquid is corrosive and causes severe burns and ulceration.

Ingestion:

May cause circulatory system failure. 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. May be harmful if swallowed.

Inhalation:

May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. Exposure to the mist and vapor may erode exposed teeth. Causes corrosive action on the mucous membranes.

Chronic:

Prolonged or repeated skin contact may cause dermatitis. Repeated exposure may cause erosion of teeth. May cause fetal effects. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure may cause conjunctivitis, photosensitization, and possible blindness.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:

Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation is required (at least 30 minutes).
SPEEDY ACTION IS CRITICAL!

Skin:

Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Give milk of magnesia.

Inhalation:

Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

Do Not use sodium bicarbonate in an attempt to neutralize the acid.

Antidote:

Do Not use oils or ointments in eye.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Not flammable, but reacts with most metals to form flammable hydrogen gas. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Containers may explode when heated.

Extinguishing Media:

For large fires, use water spray, fog, or alcohol-resistant foam. Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers. Do NOT use straight streams of water. Most foams will react with the material and release corrosive/toxic gases. Cool containers with flooding quantities of water until well after fire is out. For small fires, use carbon dioxide (expect for Cyanides), dry chemical, dry sand, and alcohol-resistant foam.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. Do not get water inside containers. A vapor suppressing foam may be used to reduce vapors. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Contents may develop pressure upon prolonged storage. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes. Use caution when opening. Keep from contact with moist air and steam.

Storage:

Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Do not store in metal containers. Do not store near flammable or oxidizing substances (especially nitric acid or chlorates).

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

| Chemical Name | ACGIH | NIOSH | OSHA-Final PELs |
|-------------------|-------------|-------------|--------------------|
| Hydrogen chloride | C 5 ppm | 50 ppm IDLH | C 5 ppm; C 7 mg/m3 |
| Water | none listed | none listed | none listed |

OSHA Vacated PELs:

Hydrogen chloride:

No OSHA Vacated PELs are listed for this chemical.

Water:

No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear neoprene or polyvinyl chloride gloves to prevent exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR §1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Clear liquid
Appearance: colorless to slight yellow
Odor: strong, pungent
pH: 0.01
Vapor Pressure: 5.7 mm Hg @ 0 deg C
Vapor Density: 1.26
Evaporation Rate: > 1.00 (N-butyl acetate)
Viscosity: Not available.
Boiling Point: 81.5-110 deg C @ 760 mmHg
Freezing/Melting Point: -74 deg C
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
NFPA Rating: Not published.
Explosion Limits, Lower: Not available.
Upper: Not available.
Decomposition Temperature:
Solubility: Miscible.
Specific Gravity/Density: 1.0-1.2
Molecular Formula: HCl.H2O
Molecular Weight: 36.46

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Mechanical shock, incompatible materials, metals, excess heat, exposure to moist air or water, bases.

Incompatibilities with Other Materials:

Bases, acetic anhydride, alkali metals, aluminum, amines, 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:

Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, hydrogen gas.

Hazardous Polymerization: Will not occur.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:

CAS# 7647-01-0: MW4025000

CAS# 7732-18-5: ZC0110000

LD50/LC50:

CAS# 7647-01-0: Inhalation, mouse: LC50 =1108 ppm/1H; Inhalation, rat: LC50 =3124 ppm/1H; Oral, rabbit: LD50 = 900 mg/kg.

CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.

Carcinogenicity:

Hydrogen chloride -

IARC: Group 3 carcinogen

Water -

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology:

Experimental reproductive effects have been reported.

Teratogenicity:

Embryo or Fetus: Stunted fetus, Inhalation, rat TCL0=450 mg/m³/1H

Specific Developmental Abnormalities: homeostatis, Inhalation, rat TCL0=450 mg/m³/1H (female 1 days pre-mating).

Reproductive Effects:

No information available.

Neurotoxicity:

No information available.

Mutagenicity:

Cytogenetic analysis: Hamster, lung = 30 mmol/L.; Cytogenetic

analysis: Hamster, ovary = 8 mmol/L.

Other Studies:

No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:

Fish: Bluegill/Sunfish: 3.6 mg/L; 48Hr; Lethal (unspecified)Fish:

Bluegill/Sunfish: LC50; 96 Hr; pH 3.0-3.5

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is class if as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part Additionally, waste generators must

consult state and local hazardous waste regu ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT

Shipping Name: HYDROCHLORIC ACID

Hazard Class: 8

UN Number: UN1789

Packing Group: II

Canadian TDG

Shipping Name: HYDROCHLORIC ACID SOLUTION

Hazard Class: 8(9.2)

UN Number: UN1789

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL

TSCA

CAS# 7647-01-0 is listed on the TSCA inventory.

CAS# 7732-18-5 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 7647-01-0: final RQ = 5000 pounds (2270 kg)

Section 302 (TPQ)

CAS# 7647-01-0: TPQ = 500 pounds; RQ = 5000 pounds (does not meet toxicity criteria but because of high production volume and recognized toxicity is considered a chemical of concern)

SARA Codes

CAS # 7647-01-0: acute.

Section 313

This chemical is not at a high enough concentration to be reportable under Section 313.

No chemicals are reportable under Section 313.

Clean Air Act:

CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 7647-01-0 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 7647-01-0 is considered highly hazardous by OSHA.

STATE

Hydrogen chloride can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T C

Risk Phrases:

R 23 Toxic by inhalation.

R 35 Causes severe burns.

Safety Phrases:

S 1/2 Keep locked up and out of reach of children.

S 9 Keep container in a well-ventilated place.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7647-01-0: 1

CAS# 7732-18-5: No information available.

United Kingdom Occupational Exposure Limits

CAS# 7647-01-0: OES-United Kingdom, TWA 1 ppm TWA; 2 mg/m3 TWA

CAS# 7647-01-0: OES-United Kingdom, STEL 5 ppm STEL; 8 mg/m3 STEL

CAS# 7647-01-0: OES-United Kingdom, STEL 5 ppm STEL; 8 mg/m3 STEL

Canada

CAS# 7647-01-0 is listed on Canada's DSL/NDSL List.

CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.

This product has a WHMIS classification of E, D2A.

CAS# 7647-01-0 is not listed on Canada's Ingredient Disclosure List.

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 7647-01-0: OEL-AUSTRALIA:TWA 5 ppm (7 mg/m3)

OEL-AUSTRIA:TWA 5 ppm (7 mg/m3)

OEL-BELGIUM:STEL 5 ppm (7.7 mg/m3)

OEL-DENMARK:STEL 5 ppm (7 mg/m3)

OEL-FINLAND:STEL 5 ppm (7 mg/m3);Skin

OEL-FRANCE:STEL 5 ppm (7.5 mg/m3)

OEL-GERMANY:TWA 5 ppm (7 mg/m3)

OEL-HUNGARY:STEL 5 mg/m3

OEL-JAPAN:STEL 5 ppm (7.5 mg/m3)

OEL-THE NETHERLANDS:TWA 5 ppm (7 mg/m3)

OEL-THE PHILIPPINES:TWA 5 ppm (7 mg/m3)

OEL-POLAND:TWA 5 mg/m3

OEL-RUSSIA:STEL 5 ppm (5 mg/m3)

OEL-SWEDEN:STEL 5 ppm (8 mg/m3)

OEL-SWITZERLAND:TWA 5 ppm (7.5 mg/m3);STEL 10 ppm (15 mg/m3)

OEL-THAILAND:TWA 5 ppm (7 mg/m3)

OEL-TURKEY:TWA 5 ppm (7 mg/m3)

OEL-UNITED KINGDOM:TWA 5 ppm (7 mg/m3);STEL 5 ppm (7 mg/m3)

OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 7/06/1999 Revision #3 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.
