I-CHEM Nalge Nunc International *Brand Products*

Material Safety Data Sheet
Hydrochloric Acid

C5714528

Section 1 - Chemical Product and Company Identification

MSDS Name: Hydrochloric Acid
Synonyms: Chlorohydric acid, hydrogen chloride, muriatic acid, spirits of salt.
Company Identification: Nalge Nunc International
Rochester, NY 14625
Company Phone Number: (800) 625-4327
CHEMTREC Phone Number, US: (800) 424-9300
CHEMTREC Phone Number, Europe: (202) 483-7616

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent	EINECS
7732-18-5	Water	62-64%	231-791-2
7647-01-0	Hydrogen chloride	36-38%	231-595-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Clear, colorless to faintly yellow
DANGER! CORROSIVE! SENSITIZER. MAY CAUSE SEVERE RESPIRATORY AND DIGESTIVE TRACT IRRITATION WITH POSSIBLE BURNS. CAUSES EYE AND SKIN BURNS.
Target Organs: None
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.
Skin: May be absorbed through the skin in harmful amounts. 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.
Inhalation: Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. May cause pulmonary edema and severe respiratory disturbances.
Chronic: Prolonged or repeated skin contact may cause dermatitis. Repeated exposure may cause erosion of teeth. May cause conjunctivitis and photosensitization.

Material Data Safety Sheet
Hydrochloric Acid

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. DO NOT allow victim to rub or keep eyes closed.
Skin: Get medical aid. Rinse area with large amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.
Ingestion: DO NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.
Antidote: No specific antidote exists.

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. Not flammable, but reacts with most metals to form flammable hydrogen gas. Use water spray to keep fire-exposed containers cool.
Extinguishing Media: Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Autoignition Temperature: Not Available
Flash Point: Not Available
NFPA Rating: Not published
Explosion Limits: Lower: Not Available Upper: Not Available

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. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not get on skin or in eyes. Do not ingest or inhale.
Storage: Keep away from heat and flame. Do not store in direct sunlight. Store in a cool, dry, well-ventilated area away from incompatible substances.
Storage Code: White

Material Data Safety Sheet
Hydrochloric Acid

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne levels below permissible exposure limits.
Exposure Limits:

Chemical Name:	ACGIH	NIOSH	OSHA
Water	None Listed		
Hydrogen chloride	None Listed	C 5 ppm; C 7mg/m^3	C 5 ppm; C 7 mg/m^3

OSHA Vacated PELs:
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.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1010.134. Always us a NIOSH-approved respirator when necessary

Section 9 - Physical and Chemical Properties

Physical State:	liquid	**Boiling Point:**	230°F
Appearance:	clear, colorless to faintly yellow	**Freezing/Melting Point:**	-101°F
Odor:	strong, pungent	**Decomposition Temperature:**	3239.6°F
pH:	1.1 (0.1N solution)	**Solubility:**	823g/L water at 32°F
Vapor Pressure:	160 mm Hg	**Specific Gravity/Density:**	1.19 (Water = 1)
Vapor Density:	1.257 (Air = 1)	**Molecular Formula:**	HCl
Evaporation Rate:	2.0 (Butyl acetate = 1)	**Molecular Weight:**	36.46
Viscosity:	not available		

Material Data Safety Sheet
Hydrochloric Acid

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, light
Incompatibilities with Other Materials: Acetate, Acetic Anhydride, Alcohols + Hydrogen Cyanide, 2-Aminoethanol, Ammonium Hydroxide, Calcium Carbide, Calcium Phosphide, Cesium Acetylene Carbide, Cesium Carbide, Cholosulfonic Acid, 1,1-difluoroethylene, Ethylene Diamine, Ethylenimine, Fluorine, Lithium Silicide, Magnesium Boride, Mercuric Sulfate, Oleum, Perchloric Acid, Potassium Permanganate, B-propiolactone, Propylene Oxide, Rubidium Acetylene Carbide, Rubidium Carbide, Silver Perchlorate + Carbotetrachloride, Sodium, Sodium Hydroxide, Sulfuric Acid, Uranium Phosphide, Vinyl Acetate. Substance polymerizes on contact with aldehydes or epoxides.
Hazardous Decomposition Products: Hydrogen chloride, Hydrogen gas
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS: CAS# 7647-01-0: MW4025000.
LD_{50}/LC_{50}: CAS# 7732-18-5: Oral, rat: LD_{50} = >90 mL/kg
CAS# 7647-01-0: Inhalation, mouse LC_{50} = 1108 ppm/1 H
Inhalation, rat: LC_{50} = 3124 ppm/1 H
Oral, rabbit: LD_{50} = 900 mg/kg
Carcinogenicity:
CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC. NIOSH. NTP, OSHA, or CA Prop 65.
CAS# 7647-01-0: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.
Epidemiology: No information available
Teratogenicity: Embryo or Fetus: Stunted fetus, ihl-rat TCLo = 450 mg/m^3/1 H Specific Developmental Abnormalities: homeostasis, ihl-rat TCLo = 450 mg/m^3/1 H
Neurotoxicity: No information available.
Mutagencity: No information available.

Section 12 - Ecological Information

Ecotoxicity: Trout LC_{100} = 10 mg/L/24 H Shrimp LC_{50} = 100-330 ppm Starfish LC_{50} = 100-330 mg/L/48 H Shore crab LC_{50} = 240 mg/L/48 H Chronic plant toxicity = 100 ppm
Environmental: Substance will neutralize soil carbonate-based components.
Physical: No information available
Other: None.

Material Data Safety Sheet
Hydrochloric Acid

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

RCRA D- Maximum Concentration of Contaminants: Not listed
RCRA D Series - Chronic Toxicity Reference Levels: Not listed
RCRA F Series Wastes: Not listed
RCRA P Series Wastes: Not listed
RCRA U Series Wastes: Not listed
RCRA Substances Banned from Land Disposal: Not listed

Section 14 - Transport Information

	US D.O.T.	IATA	IMO	RID/ADR	Canadian TDG
Shipping Name:	Hydrochloric Acid, Solution	No information available	No information available	No information available	Hydrochloric Acid
Hazard Class:	8				8(9.2)
UN Number:	UN1789				UN1789
Packing Group:	II				II

Section 15 - Regulatory Information

US Federal

TSCA: CAS# 7732-18-5 is listed on the TSCA inventory
CAS# 7647-01-0 is listed on the TSCA inventory
Health and 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 chemical are listed under TSCA Section 12b.
TSCA Significant New Use Rule (SNUR): None of the chemicals in this material have a SNUR under TSCA

CERCLA/SARA

Section 302 Reportable Quantities (RQ): CAS# 7647-01-0: final RQ = 5000 pounds (2270 kg)
Section 302 Threshold Planning Quantities (TPQ): CAS# 7647-01-0: TPQ = 500 pounds
SARA Codes: CAS# 7647-01-0: acute.
Section 313: This material contains Hydrogen chloride (CAS# 7647-01-0, 36-38%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

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 Substances 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 - Highly Hazardous

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

Material Data Safety Sheet
Hydrochloric Acid

US State

State Right to Know: Hydrogen chloride can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts
California Regulations: No information available.

European/International Regulations

European Labeling in Accordance with EC Directives:
Hazard Symbols:
Exposure Limits:
CAS# 7647-01-0: OEL-Australia: TWA 5 ppm (7 mg/m^3)
OEL-Austria: TWA 5 ppm (7 mg/m^3)
OEL-Belgium: STEL 5 ppm (7.7 mg/m^3)
OEL-Denmark: STEL 5 ppm (7 mg/m^3)
OEL-Finland: STEL 5 ppm (7 mg/m^3); Skin
OEL-France: STEL 5 ppm (7.5 mg/m^3)
OEL-Germany: TWA 5 ppm (7 mg/m^3)
OEL-Hungary: STEL 5 mg/m^3
OEL-Japan: STEL 5 ppm (7.5 mg/m^3)
OEL-The Netherlands: TWA 5 ppm (7 mg/m^3)
OEL-The Philippines: TWA 5 ppm (7 mg/m^3)
OEL-Poland: TWA 5 mg/m^3
OEL-Russia: STEL 5 ppm (5 mg/m^3)
OEL-Sweden: STEL 5 ppm (8 mg/m^3)
OEL-Switzerland: TWA 5 ppm (7.5 mg/m^3); STEL 10 ppm (15 mg/m^3)
OEL-Thailand: TWA 5 ppm (7 mg/m^3)
OEL-Turkey: TWA 5 ppm (7 mg/m^3)
OEL-United Kingdom: TWA 5 ppm (7 mg/m^3) STEL 5 ppm (7 mg/m^3)
OEL in Bulgaria Colombia, Jordan, Korea check ACGIH TLV.
OEL-New Zealand, Singapore, Vietnam check ACGI TLV

Section 16 - Other Information

MSDS Creation Date: December 20, 1995
Revision Date: September 1, 1998
Revision Number: 2