

Material Safety Data Sheet
Instant FAME Reagent 3
Hydrochloric Acid

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: Hydrochloric Acid

MSDS Preparation Date: 10/22/2007

Synonyms or Generic ID: Muriatic acid, Chlorohydric acid, hydrogen chloride, spirits of salts, hydrochloride

Chemical Family: Inorganic acid solution

Formula: HCl

Molecular Weight: 36.46

PIN (UN#/ NA#): UN1789

Company Identification:

Microbial ID.

125 Sandy Drive

Newark DE 19713

For Information, call: (800)276-8068, (302)737-4297

For Domestic CHEMTREC assistance, call: 800-424-9300

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

SECTION 2 – COMPOSITION, INFORMATION ON INGREDIENTS

CAS #	Chemical Name	Percent	EINECS/ELINCS	ACGIH TLV	Hazards
7647-01-0	Hydrogen Chloride	<7	231-595-7	(Ceiling) 5 ppm C7.5mg/m3	Corrosive/Poison/ Irritant Acid
7732-18-5	Deionized Water	>93	231-791-2	Not established	None

Hazard Symbols: C

Risk Phrases: 34 37 23 35

State: liquid	Appearance: colorless to slight yellow	Odor: Strong pungent odor
Boiling Point (C): 81.5-110°C	pH: .01	Specific Gravity: 1.0 – 1.2
Vapor Pressure (mm Hg): 5.7mm Hg @ 0°C	Vapor Density (AIR=1): 1.26	
Percent Volatile by Volume: 100	Solubility in Water: miscible	

SECTION 3 – HAZARDS IDENTIFICATION

Appearance: colorless to slight yellow clear liquid.

DANGER! Causes eye and skin burns. Causes severe digestive tract irritation with possible burns. Repeated or prolonged exposure may cause erosion of exposed teeth. Corrosive to metal. May be fatal if inhaled or swallowed. Causes severe respiratory tract irritation with possible burns. Mutagen. May cause fetal effects based upon animal studies. Possible sensitizer.

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

Potential Health Effects

Primary Route(s) of Entry: Inhalation and ingestion. Skin contact. Eye contact.

Effects of Acute Exposure: Harmful by ingestion, inhalation or skin absorption. May cause permanent damage.

LD50/LC50: CAS# 7732-18-5: Oral, rat LD50 -> 90mL/kg

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

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Eyes: 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. May cause conjunctivitis. May cause permanent damage.

Skin: Maybe 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.

Inhalation: Causes severe respiratory tract inflammation. Destructive to tissues of mucous membranes. Coughing, difficulty breathing, pulmonary edema, collapse, respiratory system and lung damage, possible coma and death. Exposure to the mist and vapor may erode exposed teeth.

Effects of Chronic Exposure: Erosion of the teeth, ulceration of the nose, mouth, and gums, bronchitis. Target organs: skin, eyes, lungs, respiratory system. To the best of our knowledge the chronic toxicity of this substance has not been fully investigated.

SECTION 4 – FIRST AID MEASURES

Eyes: Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes) holding lids apart to ensure flushing of the entire surface. SPEEDY ACTION IS CRITICAL.

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

Ingestion: Get medical aid immediately. Do NOT induce vomiting. If victim is conscious and alert give 2 – 4 cupfuls of milk or water. Consult a physician immediately. Never give anything by mouth to an unconscious person.

Inhalation: Get medical aid immediately. Remove patient to fresh air. Administer oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Call a physician.

Notes to Physician: Treat symptomatically and supportively. Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

Antidote: No specific antidote exists. Do NOT use oils or ointments in the 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 run off 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 concentration of fumes in air. Containers may explode when heated.

Hazardous Combustion Products: Hydrogen chloride gas.

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 (except for cyanides), dry chemical dry sand, and alcohol resistant foam.

Steps to be taken in case material is released or spilled: Evacuate and ventilate the area. Wear self contained breathing apparatus, rubber boots and heavy rubber gloves. Cover with soda ash or lime. Place in a suitable container and mark for disposal. Wash spill site after material pick-up is complete.

Waste disposal method: According to all applicable regulations. Avoid run off.

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Auto-ignition Temperature: Not applicable.

Flash point: Does not burn.

NFPA Rating: Health 3, Flammability 0, Instability 1.

Explosion Limits: Lower: Not applicable. Upper: Not applicable.

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. Absorb spill using an absorbent, non-combustible material such as dry 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. Contents may develop pressure upon prolonged storage. Use caution upon opening. Do not breathe dust, vapor, mist, or gas. Do not get on skin, eyes, or on clothing. Do not ingest or inhale. Do not wash down the drain. Wash well after use. According to good storage and handling practices. Do not allow smoking or food consumption while handling. 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. Do not store in metal containers. Do not store near flammable or oxidizing substances (especially nitric acid or chlorates).

SECTION 8 – EXPOSURE CONTROL/ 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	ACGH	NIOSH	OSHA
Hydrogen chloride	None listed	C5ppm; C7 mg/m3	C5ppm; C7 mg/m3
Deionized Water	None listed	None listed	None listed

OSHA Vacated PELs: Hydrogen chloride: C 5ppm; C7 mg/m3

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 29CFR 1910.133.

Skin: Wear appropriate protective chemical resistant gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Ventilation: Normal room ventilation is adequate.

Other Protective Equipment: Make eye bath and emergency shower available.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Clear, colorless to yellow

Odor: Strong pungent odor

pH: .01

Vapor Pressure: 5.7mmHg @ 0°C

Vapor Density: 1.26 (air = 1)

Evaporation Rate: No information available

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Viscosity: Not available.

Boiling Point: 81.5 – 110°C @ 760mmHg

Freezing/Melting Points: -74°C

Autoignition Temperature: Not applicable

Flash Point: Not applicable

Decomposition Temperature: Information not available

NFPA Rating: (estimated) Health: 3; Flammability: 0; Reactivity: 0.

Explosion Limits, lower: Not available

Upper: Not available.

Solubility: Soluble in water. Very soluble in alcohols; soluble in ether and benzene; insoluble in hydrocarbons

Specific Gravity: 1.0 – 1.2

Molecular Formula: HCl.H₂O

Molecular Weight: 36.46

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable

Conditions to Avoid: Incompatible materials, light, mechanical shock, metals, excess heat, exposure to moist air or water.

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

CAS#: 7647-01-0 : MW4025000

CAS#: 7732-18-5 : ZC0110000

Carcinogenicity:

CAS# 7647-01-0 IARC: Group 3 carcinogen

CAS# 7732-18-5 IARC: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: Experiment reproductive effects have been reported

SECTION 12 – ECOLOGICAL INFORMATION

Environmental: Rapidly hydrolyzes in when exposed to water. Hydrogen chloride has slight acute and chronic toxicity to aquatic life. Will exhibit extensive evaporation from soil surfaces. Upon transport through soil, hydrochloric acid will dissolve some of the soil materials (especially those with carbonate bases) and the acid will neutralize to some degree.

SECTION 13 – DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

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SECTION 14 – TRANSPORT INFORMATION

	US DOT	CANADA TDG
Shipping Name:	Hydrochloric Acid	Hydrochloric Acid Solution
Hazard Class:	8	8(9.2)
UN Number:	UN1789	UN1789
Packing Group	II	II

SECTION 15 – REGULATORY INFORMATION

US Federal

TSCA: CAS# 7332-18-5 and CAS# 7647-01-0 are listed on the TSCA Inventory.

Health and Safety Reporting List: None of the components are on this list.

Chemical Test Rules: None of the components are on this list.

TSCA Section 12b: None of the components are on this list.

TSCA Significant New Use Rule (SNUR): None of the components are on this list.

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

SARA Threshold Planning Quantities (TPQ): CAS# 7647-01-0: TPQ = 500 pounds.

SARA Hazard Categories: CAS# 7647-01-0: acute.

SARA 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 – Hazardous Air Pollutants (HAPs): CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP).

Clean Air Act – Class 1 Ozone Depletors: None of the components are on this list.

Clean Air Act – Class 2 Ozone Depletors: None of the components are on this list.

Clean Water Act – Hazardous Substances: CAS# 7647-01-0 is listed as a Hazardous Substance under CWA.

Clean Water Act – Priority Pollutants: None of the components are on this list.

Clean Water Act – Toxic Pollutants: None of the components are on this list.

OSHA – Highly Hazardous: CAS# 7647-01-0 is considered highly hazardous by OSHA.

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 Prop 65: No information available.

California No Significant Risk Level: No information available.

European/International Regulations

European Labelling in Accordance with EC Directives:

Hazard Symbols: Risk Phrases: R37 Irritating to respiratory system. R37 Irritating to Respiratory system.

Safety Phrases: S 2 Keep out of reach of children. S 3/9 Keep in a cool, well-ventilated place. S 24/25

Avoid contact with skin and eyes. S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 28A After contact with skin, wash immediately with plenty of water.

WGKK (Water Danger/Protection): No information available.

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Canadian DSL/NDSL: CAS# 7732-18-5 is listed on Canada's DSL/NDSL List. CAS# 7647-01-0 is listed on Canada's DSL/NDSL List.

Canadian WHMIS Classification: This product has a WHMIS classification of D1A, E.

Canada Ingredient Disclosure List: CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List. CAS# 7647-01-0 is listed on Canada's Ingredient Disclosure List.

Exposure Limits: OES-United Kingdom: STEL 5 ppm STEL; 7 mg/m³ STEL.

SECTION 16 – Other Information

This Material Safety Data Sheet has been prepared in accordance with 29 CFR 1910.1200 and contains information believed to be accurate and complete at the date of preparation. The statements contained herein are offered for informational purposes only and are based upon technical data. MIDI Inc. believes them to be accurate but does not purport to be all-inclusive. The above-stated product is intended for use only by persons having the necessary technical skills and facilities for handling the product at their discretion and risk. Since conditions and manner of use are outside our control, we (MIDI Inc.) make no warranty of merchantability or any such warranty, express or implied with respect to information and we assume no liability resulting from the above product or its use. Users should make their own investigations to determine suitability of information and product for their particular purposes.