

# Safety Data Sheet

## GHS-Compliant

May be used to comply with  
OSHA's Hazard Communication Standard  
29 CFR 1910.1200. Standard must be  
consulted for specific requirements.



REAGENT CHEMICAL & RESEARCH, INC.  
115 US Hwy 202 Ringoes, NJ 08551

### PRODUCT IDENTITY

Hydrochloric Acid, All Grades

Safety Data Sheet Revision Date - September 13, 2012

### Section 1 - Identification

Product Name	CAS #
Hydrochloric Acid	7647-01-0
Synonym	Chemical Formula
Muriatic Acid	HCl
Chemical Name	Chemical Family
Hydrochloric Acid Solution	Inorganic Acid
Product Use	
Acidification, pH Adjustment	
Manufacturer/Supplier Name	Address
Reagent Chemical & Research, Inc.	115 US Hwy 202 Ringoes, NJ 08551
General Information	Country
1-908-284-2800	United States
Emergency Telephone	Transportation Emergency Number
1-409-899-3400	<b>CHEMTREC</b> 1-800-424-9300

### Section 2 - Hazards Identification

#### GHS Classification:

HEALTH	PHYSICAL
Acute Toxicity - Category 1	Corrosive Liquid - Category 1
Eye Corrosion - Category 1	
Skin Corrosion - Category 1	
Skin Sensitization - Category 1	
Target Organ Toxicity - Category 1	
Aspiration Toxicity - Category 1	

#### GHS Label Elements:

**SYMBOLS:** corrosion, health hazard, aspiration toxicity



**Signal Word: DANGER**

**Section 2 - Hazards Identification (continued)**

**GHS Label:**

<i>Hazard Statements</i>	<i>Precautionary Statements</i>
Causes severe skin burns & eye damage	Do not breathe mist/vapors
Toxic if swallowed (oral)	Avoid skin contact
Toxic if inhaled (mist, vapor)	Keep container tightly closed
May cause allergic or asthmatic symptoms or breathing difficulties if inhaled	Wear respiratory protection, protective gloves and eye/face protection
May be fatal if swallowed & enters airway	Use only in a well-ventilated area
May cause genetic defects	Store container tightly closed in cool/well ventilated area
Corrosive to metals	Wash thoroughly after handling

**Section 3 - Composition / Information on Ingredients**

<u>Component Description</u>	<u>Percent</u>	<u>CAS #</u>
Hydrogen Chloride	26.00 - 37.00	7647-01-0
Water	63.00 - 74.00	7732-18-5

**EXPOSURE LIMITS/REGULATORY INFORMATION**

Substance	PEL	TLV	STEL	TWA	CEILING
Hydrogen Chloride	C-7 mg/m3	C-2 ppm	50 ppm	N/D	5 ppm
Water	N/D	N/D	N/D	N/D	N/D

N/D - Not Determined                      C = Ceiling Level

**Section 4 - First Aid Measures**

**General**

If a known exposure occurs or is suspected, immediately initiate the recommended procedures below. Simultaneously contact a physician, or the nearest Poison Control Center. Inform the person contacted of the type and extent of exposure, describe the victim's symptoms and follow the advice given. For additional information, call day or night, Reagent Chemical (409) 899-3400 or Chemtrec (800) 424-9300.

**Inhalation**

Remove from contaminated atmosphere. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration, which may be supplemented by the use of a bag-mask respirator, or a manually-triggered, oxygen supply capable of delivering 1 liter/second or more. If the victim is breathing, oxygen may be administered from a demand-type or continuous-flow inhalator, preferably with a physician's advice. Contact a physician immediately.

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**Section 4 - First Aid Measures (continued)**

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**Eye Contact**

Immediately flush the eyes with large quantities of running water for 15 minutes.

Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. DO NOT attempt to neutralize with chemical agents.

Obtain medical attention as soon as possible. Oils or ointments should not be used.

Continue the flushing for an additional 15 minutes if the physician is not available.

**Skin Contact**

Immediately remove contaminated clothing under a safety shower. Flush all affected areas with large amounts of water for 15 minutes. DO NOT attempt to

neutralize with chemical agents. Obtain medical advice.

**Ingestion**

DO NOT induce vomiting. Immediately give large quantities of water or milk, if

available. If vomiting does occur, give fluids again. Never give anything by mouth to an unconscious person. Call a physician or the nearest Poison Control Center.

**Medical Conditions Generally Aggravated by Exposure**

Hydrogen Chloride will aggravate breathing disorders

**Note to Physician**

Attending Physician should treat exposed patients symptomatically

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**Section 5 - Fire Fighting Measures**

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**Extinguishing Method**

Not Applicable, use water to dilute spills and to flush them away from ignition sources.

**Unusual Fire and Explosion Hazards**

Non-flammable, but Hydrochloric Acid reacts with metals.

**Special Firefighting Procedures**

Non-flammable, but Hydrochloric Acid reacts with all metals, except gold and platinum, with rapid evolution of Hydrogen which is flammable and explosive in air.

Firefighters exposed to Hydrochloric Acid vapors should wear Scott Air-Pak, or equivalent. Hydrogen Chloride vapors are extremely irritating to the respiratory tract and may cause breathing difficulty.

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**Section 6 - Accidental Release Measures**

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**Steps to be Taken in Case Material is Released or Spilled**

Spills or discharges into the environment involving large quantities of Hydrochloric Acid should be controlled and cleaned-up according to a pre-determined, affirmative written Spill Prevention and Control Program. For assistance in developing a SPCP contact your nearest Reagent Sales Office. Refer to Section 15 for spill/release reporting information.

Spills should be handled immediately by neutralization and dilution of the spilled product by the use of Soda Ash (Sodium Carbonate), Lime (Calcium Hydroxide), or Limestone (Calcium Carbonate) with large amounts of water. For an interior (inside a closed space) spill be aware that the use of Soda Ash, Lime and Limestone will evolve heat and carbon dioxide and that ample ventilation must be provided.

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**Section 6 - Accidental Release Measures (continued)**

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**Waste Disposal**

Under Federal RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether the product falls under RCRA as a hazardous waste.

This is because product uses, transformations, mixtures, etc. may render the resulting end-product hazardous.

**Container Disposal**

Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

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**Section 7 - Handling and Storage**

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**Handling**

Chemical goggles and full face shield must be worn at all times by personnel

exposed to or handling Hydrochloric Acid. The use of a NIOSH approved cartridge respirator or a Scott Air-Pak should be used by all personnel exposed.

**Storage**

Store containers in a cool, dry location away from direct sunlight, sources of

intense heat, or where freezing may occur. Store material in acid-proof container.

Keep container tightly closed when not in use. Keep container away from incompatible materials. All loading, unloading, and storage equipment must be inspected prior to any transfer operations are initiated.

**General Comments**

Impervious clothing, gloves, footwear and head gear must be worn at all times

by personnel exposed to or handling Hydrochloric Acid.

**Precautions to be Taken in Handling and Storage**

Make sure all personnel involved in housekeeping and spill clean-up follow good

Industrial Hygiene practices and wear proper protective equipment.

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**Section 8 - Exposure Controls / Personal Protection**

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**EXPOSURE LIMITS**

Substance	PEL	TLV	STEL	TWA	CEILING
Hydrogen Chloride	C-7 mg/m <sup>3</sup>	C-5 ppm	50 ppm	N/D	5 ppm
Water	N/D	N/D	N/D	N/D	N/D

N/D - No Data Available      C = Ceiling Level

**Respiratory Protection**

Maintain airborne contaminate levels below listed guidelines. Use with adequate

ventilation. Use a mechanical fan or vent area to scrubber. Use NIOSH approved

respiratory protection if exposure limits are exceeded.

Ventilation	Local Exhaust If PEL exceeded	Special Vent fumes to appropriate scrubber
	Mechanical (General) If PEL exceeded	Other Not Applicable

**Skin Protection**

Wear neoprene rubber gloves to minimize skin contact. Additional protection may be

necessary to prevent skin contact including use of apron, face shield, boots or full

body protection. A safety shower should be located in the work area.

**Eye Protection**

Splash goggles or safety glasses. Face shields are recommended. Eye-wash stations

should be available where eye contact can occur.

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**Section 8 - Exposure Controls / Personal Protection (continued)**

**Other Protection**

Use body protection appropriate for task. An apron or other impermeable body protection is suggested. Full body chemical protection is recommended for emergency response procedures.

**Section 9 - Physical and Chemical Properties**

Boiling Point	230° F	Specific Gravity (H2O = 1)	1.01 - 1.25
Vapor Pressure (mm Hg)	50 - 60 mm	Freezing Point	.-12° F to -63° F
Vapor Density (AIR = 1)	N.A.	Density (lbs/gal)	8.50 - 9.85

Solubility in Water  
miscible

**Appearance and Odor**

Clear/Slightly yellow with a sharp pungent odor

**Section 10 - Stability and Reactivity**

Stability	Unstable		Conditions to Avoid Hydrochloric Acid is extremely reactive. Avoid contact with metal surfaces and oxidizing agents.
	Stable	X	

**Incompatibility (Materials to Avoid)**

Hydrochloric Acid is chemically stable when properly contained and handled. It is a strong mineral acid and reacts with many metals and metal oxides and hydroxides to form the equivalent metal chloride. It reacts with zeolites and other silicious compounds to form Hydrosilicic Acid; it reacts with carbonates to form Carbon Dioxide and Water. It is oxidized by Oxygen or electrolysis to form Chlorine, a lethal, poisonous gas. It reacts with alkaline compounds to form a neutral salt. It is a hydrolyzing agent for carbohydrates, esters and other compounds. It's reaction with most metals will produce Hydrogen, an explosive gas. Violent reactions will result when Hydrochloric Acid Reacts with acetic anhydride, 2-aminoethanol, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, ethylene diamine, ethylene imine, oleum (fuming sulfuric acid), perchloric acid, beta propiolactone, propylene oxide, sodium hydroxide, sulfuric acid, uranium phosphide and vinyl acetate. This listing is not all-inclusive.

**Hazardous Decomposition or By-products**

Extreme heat may cause the product to decompose, producing toxic fumes which may include chlorine compounds.

Hazardous Polymerization	May Occur		Conditions to Avoid Extreme heat and contact with incompatible materials
	Will Not Occur	X	

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**Section 11 - Toxicological Information**

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Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Yes	Yes	Yes

Health Hazards (Acute and Chronic)  
Hydrogen Chloride, both as a gas and in a solution as Hydrochloric Acid, is a corrosive substance and can cause severe and painful burns on contact with any part of the body or if taken internally. The mucous membranes of the eyes and the upper respiratory tract are especially susceptible to the irritating effects of high atmospheric concentrations of Hydrogen Chloride. The gas or vapor is so penetrating and pungent that when high concentrations do occur, those exposed should immediately leave the contaminated area.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	No Data Available	No Data Available	No Data Available

Signs and Symptoms of Exposure  
Exposure to Hydrochloric acid may cause severe burns at the contact points

Medical Conditions Generally Aggravated by Exposure  
Exposure to fumes may aggravate dermatitis and breathing disorders.

Toxicology	Inhalation Data
Hydrogen Chloride	Human LCLo - 1300 ppm/30 min
	Rat LC <sub>50</sub> - 4701 ppm/30 min
	Oral (rabbit) LD <sub>50</sub> - 900 mg/kg
	Mutagenic Effects
	Inhalation: 100 ppm/24 hrs (Chromosome damage)
	Oral: 100 ppm (Chromosome damage)
	Parental: 20 mg (Cytogenic effects)

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**Section 12 - Ecological Information**

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Ecological Toxicity  
Animals exposed to hydrochloric acid solution will experience tissue damage, burns and may be killed. Plants contaminated with hydrochloric acid solutions of low pH may be adversely effected or destroyed. High concentrations have been shown to be detrimental to aquatic life. A release into a body of water will kill fish and other aquatic life.

Other Ecological Information  
Hydrochloric acid is stable and found naturally in the environment. All work practices should be aimed at eliminating environmental contamination.

Chemical Fate Information  
Hydrochloric acid is naturally occurring in the environment.

Other Regulatory Information  
No other regulatory information is available on this product.

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**Section 13 - Disposal Considerations**

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As sold, this product, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR 261). It is listed as Hazardous Waste Number D002, listed due to its corrosivity. The transportation, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Refer to state and local statutes for any additional requirements, as they may differ from Federal laws.

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**Section 13 - Disposal Considerations (continued)**

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**Waste Disposal**

Under Federal RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether the product falls under RCRA as a hazardous waste.

This is because product uses, transformations, mixtures, etc. may render the resulting end-product hazardous.

**Container Disposal**

Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

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**Section 14 - Transport Information**

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**Regulated Material**

Hydrochloric Acid is defined as hazardous by the US DOT and Transport Canada

**North American Emergency Response Guide Book**

ID # 1789 Guide #157 2008 & 2012 Revision

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**DOMESTIC SHIPPING INFORMATION**

Proper Shipping Name	Hydrochloric Acid	Hazard Classification	Corrosive
UN/NA Identification	UN 1789	Hazard Class	Class 8
DOT Labels Required	Corrosive	Packaging Group	II

**INTERNATIONAL SHIPPING INFORMATION**

Proper Shipping Name	Hydrochloric Acid	Hazard Classification	Corrosive
UN/NA Identification	UN 1789	Hazard Class	Class 8
Labels Required	Corrosive	Packaging Group	II

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**Section 15 - Regulatory Information**

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**U.S. Federal Regulations****Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):**

Chemical Name: Hydrochloric Acid CAS # 7647-01-0 RQ - 5000 lbs

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**Toxic Substances Control Act (TSCA):**

All components of this product are included on the TSCA inventory

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**OSHA Hazard Communication Standard Classification:**

Corrosive as defined by the OSHA Hazard Communication Standard.

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**Clean Water Act (CWA):**

Chemical Name: Hydrochloric Acid CAS # 7647-01-0 Listed as Hazardous

No chemical components listed as Priority pollutants or Toxic pollutants

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**Clean Air Act (CAA):**

Hydrochloric acid, CAS 7647-01-0, is listed as a hazardous air pollutant (HAP)

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**US Environmental Protection Agency Risk Management Plan (RMP) Regulated:**

No, Hydrochloric acid solution under 37% is not regulated

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**Superfund Amendments and Reauthorization Act (SARA) Title III Information:**

SARA Section 302: Hydrochloric Acid CAS # 7647-01-0 TPQ 5000 lb EPCRA RQ

SARA Section 313: Hydrochloric Acid CAS # 7647-01-0

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**Section 15 - Regulatory Information (continued)**

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**National Sanitation Foundation Limits (ANSI/NSF Standard 60):**

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Maximum Drinking Water Use Concentration - 40 mg/l

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Scale and Corrosion Control at Maximum 40 mg/l

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**State Regulations****California Safe Drinking Water Act (Prop 65) Listing:**

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No ingredients listed in this section

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**California Right to Know Act:**

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Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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**New Jersey Right to Know Act:**

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Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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Chemical Name: Water                                      CAS # 7732-18-5

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**Massachusetts Right to Know Act Substance List (MSL)::**

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Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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**Pennsylvania Right to Know Act Hazardous Substance List:**

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Chemical Name: Water                                      CAS # 7732-18-5

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Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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**International Regulations****Canadian Domestic Substance List (DSL) Inventory Listing:**

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Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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**Canadian Ingredient Disclosure List**

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Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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**Canadian Workplace Hazardous Materials Information System (WHMIS):**

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Class E: Corrosive material

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This product has been classified according to the hazard criteria of the CPR  
and the MSDS contains all of the information required by the CPR

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**European Inventory of Existing Chemicals (EINECS):**

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Chemical Name: Hydrochloric Acid                      EINECS # 2315957

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**EU Labeling in Accordance with EC Directives:**

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Hazard Symbols: C

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**EU Risk (R) and Safety (S) Phrases:**

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R23/24/25: Toxic by inhalation, in contact with skin and if swallowed

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R37/38: Irritating to respiratory system and skin

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R41: Risk of serious damage to eyes

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S36/37: Wear suitable protective clothing and gloves

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S45: In case of accident or if you feel unwell, seek medical advice immediately

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S53: Avoid exposure - obtain special instructions before use

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S61: Avoid release to the environment. Refer to safety data sheet

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**Section 15 - Regulatory Information (continued)**

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**Japanese Minister of International Trade and Industry (MITI) Inventory Listing:**

Chemical Name: Hydrochloric Acid                      SECTION STRUCTURE # 1-324

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**Australian Inventory of Chemical Substances (AICS) Listing:**

Chemical Name: Hydrochloric Acid                      CAS # 7647-01-0

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**US Census Bureau - Foreign Trade Identification**

Chemical Name: Hydrochloric Acid                      HTS & Schedule B # 2806.10.0000

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**Section 16 - Other Information**

Created By Product Safety - 6/1/98	MSDS Revision Date September 13, 2012
MSDS Revision Number Revision # 007	Revision Indicator GHS Compliant Format
MSDS Contact Robert Dritschel 908-284-2800	
Does Product Contain, or is Manufactured with, CFC's? No	
National Fire Protection Association (NFPA) Ratings: Health - 3    Flammability - 0    Instability - 0    Other Hazard Information - ACID	
Hazardous Material Identification System (HMIS): Health - 3    Flammability - 0    Physical Hazard - 0    Protective Equipment - X	
North American Emergency Response Guide Book ID # 1789    Guide #157    2008 & 2012 Revision	

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