

WCA GAS, INC. (216) 642-6600
 805 BROOKSIDE WOODS BLVD
 CLEVELAND, OH 44101
 WCA GAS, INC. (216) 642-6600
 WCA GAS, INC. (216) 642-6600

MATERIAL
 SAFETY
 DATA SHEET

PRODUCT NAME Hydrogen Chloride	CAS # 7647-01-0
TRADE NAME AND SYNONYMS Hydrogen chloride, anhydrous (D.O.T.)	DOT I.D. No.: UN 1050 (RQ 5000/2270)
CHEMICAL NAME AND SYNONYMS Hydrogen Chloride; Hydrochloric Acid, Anhydrous	DOT Hazard Class: Division 2.3
ISSUE DATES AND REVISIONS Revised January 1995	Formula HCl
	Chemical Family: Inorganic Acid, Anhydrous

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT Ceiling Limit: 5 Molar PPM (ACGIH 1994-1995). OSHA 1993 Ceiling Limit = 5 Molar PPM.
SYMPTOMS OF EXPOSURE Corrosive and irritating to the upper and lower respiratory tracts, skin and eyes. It hydrolyzes very rapidly yielding hydrochloric acid. Skin burns and mucosal irritation are like that from exposure to volatile inorganic acids. Symptoms include lacrymation, cough, labored breathing and excessive salivary and sputum formation. Excessive irritation of the lungs causes acute pneumonitis and pulmonary edema which could be fatal. (Continued on Page 4)
TOXICOLOGICAL PROPERTIES Hydrogen chloride is irritating and corrosive to all living tissue. Toxic level exposure to dermal tissue causes hydrochloric acid burns and skin lesions resulting in early necrosis and scarring. Chemical pneumonitis and pulmonary edema result from exposure to the lower respiratory tract and deep lung. Residual pulmonary malfunction might also occur. Burns to the eye result in lesions and possible loss of vision. Hydrogen chloride is not listed in the IARC, NTP or by OSHA as a carcinogen or potential carcinogen. (Continued on Page 4)
RECOMMENDED FIRST AID TREATMENT PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO HYDROGEN CHLORIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. <u>Inhalation:</u> Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Unconscious persons should be moved to an uncontaminated area and given assisted respiration and supplemental oxygen. Keep the victim warm and quiet. Assure that mucus or vomited material does not obstruct the airway by positional drainage. Delayed pulmonary edema may occur. Keep patient under medical observation for at least 24 hours. (Continued on Page 4)

Information contained in this material safety data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this Company or others covering any process, composition of matter or use.
 Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.

HYDROGEN CHLORIDE

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Reacts with the moisture in the atmosphere yielding dense, acrid, hydrochloric acid fumes. Also reacts hazardously with fluorine, calcium carbide, cesium carbide, rubidium carbide and lithium silicide. (Continued on Page 4)

PHYSICAL DATA

BOILING POINT -120.9°F (-84.9°C)	LIQUID DENSITY AT BOILING POINT 74.3 lb/ft ³ (1190 kg/m ³)
VAPOR PRESSURE @ 70°F (21.10C) = 627.7 psia (4328 kPa)	GAS DENSITY AT 70°F, 1 atm .095 lb/ft ³ (1.52 kg/m ³)
SOLUBILITY IN WATER Very soluble	FREEZING POINT -173°F (-114°C)
EVAPORATION RATE N/A (Gas)	SPECIFIC GRAVITY (AIR=1) @ 70°F (21.1°C) =1.27
APPEARANCE AND ODOR Colorless gas with a sharp, pungent odor	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME (See Page 4) LEL N/A UEL N/A
EXTINGUISHING MEDIA Nonflammable		ELECTRICAL CLASSIFICATION Nonhazardous
SPECIAL FIRE FIGHTING PROCEDURES If cylinders are exposed to a fire, safely relocate or keep cool with water spray.		
UNUSUAL FIRE AND EXPLOSION HAZARDS None		

REACTIVITY DATA

STABILITY Unstable		CONDITIONS TO AVOID None
Stable	X	
INCOMPATIBILITY (Materials to avoid) Water, organic materials		
HAZARDOUS DECOMPOSITION PRODUCTS Hydrochloric acid on hydrolysis		
HAZARDOUS POLYMERIZATION May Occur		CONDITIONS TO AVOID
Will Not Occur	X	None

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact your closest supplier location or call the emergency telephone number listed herein.
WASTE DISPOSAL METHOD Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to your supplier. For emergency disposal assistance contact your closest supplier location or call the emergency telephone number listed herein.

HYDROGEN CHLORIDE

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.		
VENTILATION Hood with forced ventilation	LOCAL EXHAUST To prevent accumulation above the ceiling limit for HCl	SPECIAL N/A
	MECHANICAL (Gen.) N/A	OTHER N/A
PROTECTIVE GLOVES Kel-F® or Teflon®		
EYE PROTECTION Safety goggles or glasses		
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower, eyewash "fountain" face shield		

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION DOT Shipping Name: Hydrogen chloride, anhydrous DOT Hazard Class: Division 2.3 DOT Shipping Label: Toxic Gas; Corrosive I.D. No.: UN 1050 (RQ 5000/2270)
SPECIAL HANDLING RECOMMENDATIONS Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<1,500 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. For additional handling recommendations, consult Compressed Gas Association's Pamphlet P-1.
SPECIAL STORAGE RECOMMENDATIONS Protect cylinders from Physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time. For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1.
SPECIAL PACKAGING RECOMMENDATIONS Most metals corrode rapidly with wet hydrogen chloride.
OTHER RECOMMENDATIONS OR PRECAUTIONS Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR). (Continued on Page 4)

*Various Government Agencies (i.e. Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that he is in full compliance.

HYDROGEN CHLORIDE

HEALTH HAZARD DATA

SYMPTOMS OF EXPOSURE: (Continued)

Hydrochloric acid burns exhibit severe pain, redness, possible swelling and early necrosis.

TOXICOLOGICAL PROPERTIES: (Continued)

Persons in ill health where such illness would be aggravated by exposure to hydrogen chloride should not be allowed to work with or handle this product.

RECOMMENDED FIRST AID TREATMENT: (Continued)

Eye Contact: PERSONS WITH POTENTIAL EXPOSURE TO HYDROGEN CHLORIDE SHOULD NOT WEAR CONTACT LENSES.

Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes.

Skin Contact: Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES: (Continued)

Moist hydrogen chloride reacts with most metals in a corrosive manner liberating flammable hydrogen gas. It reacts with many organic materials with the liberation of heat.

SPECIAL PRECAUTIONS

OTHER RECOMMENDATIONS OR PRECAUTIONS: (Continued)

Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

Hydrogen chloride is considered a toxic chemical and is subject to the reporting requirements of SARA, Title III, Section 313.

NFPA 704 No. for hydrogen chloride = 3 0 1 None