



A DIVISION OF NORCO, INC.

Emergency Contact: Chemtrec (800) 424-9300
Or Norco (208) 336-1643

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Boise, ID 83705
(208) 336-1643

0.0001% to 1.0% Hydrogen Chloride in Nitrogen

MATERIAL SAFETY DATA SHEET

Identification

Product Name: 0.0001% to 1.0% Hydrogen Chloride in Nitrogen
CAS Number: Not Applicable
Chemical Family: Gas Mixture
Chemical Formula: HCl in N₂
Synonyms: None
MSDS Identification Code/Number: NLB 3200
Prepared By: Quality Dept.

Revision Date: 08/21/13
Last Review Date: 08/21/13

Composition, Information on Ingredients

Exposure Limits¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Hydrogen Chloride Formula: HCl CAS #: 7647-01-0 RTECS#: MW4025000	<1.0%	5 PPM Ceiling	2 PPM Ceiling	LC ₅₀ 3120 PPM Inhalation Rat 1Hr.
Nitrogen Formula: N ₂ CAS#: 7727-37-9 RTECS#: QW9700000	>99.0%	None Established	Simple Asphixiant	Not Available

¹ Refer to individual state or provincial regulations, as applicable, for limits that may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993).

³ As stated in the ACGIH 2007 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

IDLH: 50 PPM

Hazards Identification

Emergency Overview:

Colorless, non-flammable gas with a pungent odor. Hydrogen Chloride may cause burns of the eyes, skin, and mucous membranes. Hydrogen Chloride may cause liver damage. Nitrogen acts as a simple asphixiant by displacing oxygen necessary to support life. Contents under pressure. Use and store below 125^o F (52^o C).

Route of Entry:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
Yes	No	Yes	Yes	No

Hazards Identification Continued

Health Effects:

Exposure Limits Yes	Irritant Yes	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None reported.		

Carcinogenicity: NTP: No IARC: No OSHA: No

Eye Effects:

Contact with rapidly expanding gas near the point of release may cause frostbite. Corrosive to the eyes and may cause severe damage including blindness.

Skin Effects:

Contact with rapidly expanding gas near the point of release may cause frostbite with redness, skin color change to gray or white, and blistering. Corrosive to skin. Reacts with water very rapidly yielding hydrochloric acid. Hydrogen chloride burns exhibit severe pain, redness, possible swelling and early necrosis.

Ingestion Effects:

Ingestion is unlikely. Gas at room temperature.

Inhalation Effects:

Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Chemical pneumonitis and pulmonary edema result from exposure to the lower respiratory tract and deep lung. Residual pulmonary malfunction might occur. Mixture can act as a simple asphyxiant by displacing air necessary for life. Symptoms include rapid respiration, muscular uncoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death.

Medical Conditions Aggravated by Exposure:

Pre-existing skin disorders, eye disorders, and respiratory disorders.

NFPA Hazard Codes

Health: 3
Flammability: 0
Instability: 0

HMIS Hazard Codes

Health: 3
Flammability: 0
Physical Hazard: 3

Ratings System

0 = No Hazard
1 = Slight hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

Hazard ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, *CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition*.

First Aid Measures

Eye:

PERSONS WITH POTENTIAL EXPOSURE TO HYDROGEN CHLORIDE SHOULD NOT WEAR CONTACT LENSES. Flush eyes with large amounts of water for at least 30 minutes, holding eyelids open to ensure adequate rinsing. If irritation persists or frostbite is suspected, seek immediate medical attention.

Skin:

Remove contaminated clothing and flush affected area with large quantities of water. For frostbite, seek medical attention immediately; do NOT rub the affected areas or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas.

First Aid Measures Continued

Ingestion:

Not anticipated; product is a gas at room temperature.

Inhalation:

PROMPT REMOVAL FROM THE CONTAMINATED AREA AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep victim warm and calm. Further treatment should be symptomatic and supportive. Seek immediate medical attention.

Fire Fighting Measures

Conditions of Flammability: Not flammable		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL (%): None	UEL (%): None	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

Fire and Explosion Hazards:

Nonflammable. Cylinders may vent rapidly or rupture violently from pressure when involved in a fire situation.

Extinguishing Media:

Use media suitable for surrounding combustible or flammable materials. Hydrogen chloride forms hydrochloric acid solutions with water.

Fire Fighting Instructions:

Stop the flow of gas if it can be done without risk. Use water spray to cool surrounding containers. Continue to cool surrounding containers until well after flames are extinguished. Firefighters should wear a full-face piece, NIOSH/MSHA-approved self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout gear.

Accidental Release Measures

Isolate hazard area, evacuate personnel and deny entry to unauthorized/unprotected individuals. Extinguish all ignition sources and ventilate closed spaces and low areas. Personnel entering area should wear appropriate protective equipment, including respiratory protection suitable for unknown concentrations. Personnel should not re-enter an area until hydrogen chloride has sufficiently dispersed and adequate oxygen re-established. If a 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 the appropriate emergency telephone number listed in Section 1 or call your closest Norco/NorLab location.

Handling and Storage

Electrical classification:

Non-hazardous

Many metals corrode rapidly with wet hydrogen chloride.

Use only in well-ventilated areas. Valve protection caps must remain in place on refillable cylinders unless cylinder 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 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.

Handling and Storage Continued

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125^o F (52^oC). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

Exposure Controls, Personal Protection

Engineering Controls:

Use a laboratory hood with forced ventilation for handling small quantities. Use local exhaust to prevent accumulation above the exposure limit.

Eye/Face Protection:

Chemical safety goggles with full face shield.

Skin Protection:

Protective gloves as appropriate for the job.

Respiratory Protection:

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Emergency use:

Use positive pressure airline respirator with escape cylinder or self contained breathing apparatus for oxygen deficient atmospheres (<19.5%). For exposures above IDLH, an additional escape bottle is required.

Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density (Air = 1)	: 0.97	
Evaporation point	: Not Available	
Boiling point	: -320.4	^o F
	: -195.8	^o C
Freezing point	: -345.9	^o F
	: -209.9	^o C
pH	: Not Available	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Slightly Soluble	
Odor threshold	: No Data	
Odor and appearance	: Colorless gas/vapor with a highly irritating, pungent odor.	

Stability and Reactivity

Stability:

Stable under normal storage conditions

Stability and Reactivity Continued

Incompatible Materials:

Hydrogen Chloride in the presence of moisture is corrosive to many metals and can generate flammable hydrogen gas. Not compatible with galvanized pipe, brass, copper, bronze, alkaline materials, cyanides, and sulfites. Reacts exothermic (heat producing) with many organic materials. Nitrogen reacts with lithium, neodymium, and titanium at high temperatures.

Hazardous Decomposition Products:

Thermal decomposition can lead to the release of irritating gases and vapors.

Hazardous Polymerization:

Will not occur.

Toxicological Information

Inhalation:

Studies indicate that hydrogen chloride is immediately irritating to humans at concentrations of 5 PPM or greater. Thirty minute lethal exposures in experimental animals ranged from 2640 PPM to 4700 PPM hydrogen chloride vapor.

Chronic Exposure:

Chronic exposure to corrosive fumes/gases may cause erosion of teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.

Reproductive:

No information available

Ecological Information

Due to hydrogen chloride animals and/or plants exposed to this mix may be adversely affected or destroyed. This product does not contain any class 1 or class 2 ozone depleting substances.

Disposal Considerations

Do not attempt to dispose of waste or unused quantities in returnable cylinders. Return in the shipping container, *properly labeled, with any valve outlet plugs or caps secure and valve protection cap in place* to NorLab for proper disposal. Non-refillable containers should be vented in a well-ventilated area then disposed of in compliance with local regulations, or returned to NorLab.

Transportation Information

Parameter	United States DOT	Canada TDG
Proper Shipping Name:	Compressed Gas, N.O.S., (hydrogen chloride, nitrogen)	Compressed Gas, N.O.S.
Hazard Class:	2.2	2.2
Identification Number:	UN1956	UN1956
Shipping Label:	Non Flammable Gas	Non Flammable Gas

Regulatory Information

SARA Title III Notifications and Information:**SARA Title III – Hazard Classes:**

Acute Health Hazard
Chronic Health Hazard
Sudden Release of Pressure Hazard
Reactive Hazard

Regulatory Information Continued

SARA Title III- Section 313 Supplier Notification:

This gas mixture is subject to the reporting requirements of sections 302, 304, and 313 of Title II of the Superfund Amendments and Reauthorization Act as follows:

U.S. SARA Section 302 Extremely Hazardous Substance Threshold Planning Quantity: Hydrogen Chloride = 500 lbs.

U.S. SARA Section 304 Extremely Hazardous Substance Reporting Quantity: Hydrogen Chloride = 5000 lbs.

U.S. SARA Threshold Planning Quantity: Hydrogen Chloride = 500 lbs.

U.S. TSCA Inventory Status: The components of this gas mixture are listed on the TSCA Inventory.

U.S. CERCLA Reportable Quantity (RQ): Hydrogen Chloride = 5000 lbs.

Risk and Process Safety Management Programs:

This material, as supplied, contains one or more regulated substances with specified thresholds under 40 CFR Part 68 or regulated as a highly hazardous chemical pursuant to the 29 CFR Part 1910.110 with specified thresholds:

Hydrogen Chloride: Clean Air Act 5000 lbs. OSHA Process Safety Management 5000 lbs.

California Proposition 65:

This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

Other Information

Compressed gas cylinders must not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

Disclaimer of expressed and implied warranties:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).