

PRODUCT NAME: HYDROGEN CHLORIDE**1. Product and Company Identification**

BOC India Limited,
Oxygen House
P-43 Taratala Road
Kolkata 700 0888

BOC India Limited
Unit: Special Gases Center Taloja

TELEPHONE NUMBER: (033) 24014708-20

Customer Service Center: 1800 345 6789

PRODUCT NAME: HYDROGEN CHLORIDE

CHEMICAL NAME: Hydrochloric Acid

COMMON NAMES/SYNONYMS: Anhydrous hydrochloric acid, Muriatic acid

2. Composition, Information on Ingredients**EXPOSURE LIMITS¹:**

INGREDIENT	% VOLUME	PEL-OSHA	TLV	
Hhydrogen Chloride FORMULA: HCl CAS: 007647-01-0	>99.0	5 ppm Ceiling	2 ppm Ceiling	

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

²

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

3. Hazards Identification**EMERGENCY OVERVIEW**

Colorless poison,corrosive gas with sharp pungent odor. Corrosive and irritating to the eyes,skin and mucous membranes. Inhalation may result in chemical pneumonitis, pulmonary edema, and death. Contents under pressure. Use and store below 125 °F

PRODUCT NAME: HYDROGEN CHLORIDE**ROUTE OF ENTRY:**

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

HEALTH EFFECTS:**EYE EFFECTS:**

Corrosive and irritating to the eyes. Contact may cause painful burns and ulcerations. Burns to the eyes result in lesions and possible loss of vision.

SKIN CONTACT:

Corrosive and irritating to the skin and all living tissue. It reacts with water very rapidly yielding hydrochloric acid. Skin burns and mucosal irritation are like that from exposure to volatile inorganic acids. Hydrogen Chloride burns exhibit severe pain, redness, and possible swelling and early necrosis.

INHALATION EFFECTS:

Corrosive and irritating to the upper and lower respiratory tract and all mucosal tissue. Symptoms include lacrimation, cough, labored breathing, and excessive salivary and sputum formation. Excessive irritation of the lungs causes acute pneumonitis and pulmonary edema, which could be fatal. Residual pulmonary malfunction may also occur. Chemical pneumonitis and pulmonary edema may result from exposure to the lower respiratory tract and deep lung.

INGESTION:

Ingestion is unlikely. Contact will cause irritation or burns.

CHRONIC:

REPEATED OR PROLONGED EXPOSURE TO LOW CONCENTRATION MAY CAUSE DERMATITIS OR EROSION OF EXPOSED TEETH.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Irritant properties may aggravate preexisting eye, skin and respiratory disorders.

4. First Aid Measures

EYES:

PERSONS WITH POTENTIAL EXPOSURE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eyes with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes. Seek immediate medical attention.

SKIN:

Remove contaminated clothing as rapidly as possible. Flush affected area with copious quantities of water. Seek immediate medical attention.

INGESTION:

Seek immediate medical attention.

PRODUCT NAME: HYDROGEN CHLORIDE**INHALATION:**

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Conscious persons should be assisted to uncontaminated area and inhale fresh air. If breathing is difficult, administer oxygen. Unconscious persons should be moved to an uncontaminated area and given artificial resuscitation and supplemental oxygen. Assure that mucus or vomited material does not obstruct the air way by use of positional drainage. Delayed pulmonary edema may occur. Keep the patient under medical observation for at least 24 hours.

5. Fire Fighting Measures

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

FIRE AND EXPLOSION HAZARDS:

Nonflammable. Aqueous hydrochloric acid solutions react with many metals in corrosive manner liberating hydrogen gas. It reacts with many organic materials with liberation of heta. Cylindr may vent or rupture violently when involved in a fire situation.

EXTINGUISHING MEDIA:

Use media for surrounding materials. Stop flow of gas. Use water spray to knock down vapors and cool surrounding containers. Highly soluble in water – will react to yield dense acrid HCl fumes.

FIRE FIGHTING INSTRUCTIONS: Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear with additional chemical protective clothing as necessary to prevent exposure. Continue to cool fire-exposed cylinders until well afetr flames are extinguished. Dike corrosive runoff waters from fighting fire for later disposal.

6. Accidental Release Measures

Immediately evacuate all personnel from affected area. Deny entry to unauthorized or unprotected individuals. Use appropriate protective equipment (See Section 8). Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. Approach release from unwind. Use water fog or spray to knock down vapors. Run off water from Cleanup are corrosive. Prevent runoff water from entering waterways and sewers. Consult a HAZMAT specialist and the appropriate emergency telephone number in section 1 or your closest BOCI location. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs.

7. Handling and Storage

Classification: Nonhazardous.

Many metals corrode rapidly with wet hydrogen Chloride.

Use only in well-ventilated areas. Valve protection caps must remain in plave 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 low-pressure piping or systems. Do not heat cylinder by any means to increase rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Do not insert any object (i.e. screwdriver) into valve cap openings as this can damage the valve causing leakage.

Protect cylinder from physical damage. Store in cool, dry, well-* ventilated areas of non combustible construction away from alkalis, oxidizing materials, organic heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 51.67⁰ C. 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 from being stored for excessive periods of time.

Never carry a compressed gas cylinder or container of gas in cryogenic liquid form in enclosed space such as a car trunk, van station or wagon. A leak can result in fire, explosion, asphyxiation or toxic exposure. For additional storage recommendations, consult Compressed Gas Association's pamphlet

PRODUCT NAME: HYDROGEN CHLORIDE

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52 °C. 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.

Proper handling, storage and operation of regulating equipment and cylinders is required to safely fill Hydrogen Chloride balloons. **DO NOT ALLOW CHILDREN** or unqualified people to operate balloon filling equipment. **INTENTIONAL INHALATION OF HYDROGEN CHLORIDE CAN CAUSE SERIOUS LUNG DAMAGE OR DEATH.** A balloon filling Hydrogen Chloride regulator must be attached to the valve before it is opened. Close cylinder valve after each use and when empty. Do not use in poorly ventilated area or attempt to remove stuck or jammed protective caps. Check for leaks and do not use leaky equipment. Do not use Hydrogen Chloride unless cylinder is properly labeled. Do not attempt to transfer Hydrogen Chloride from cylinder into any other container. Do not substitute hydrogen (a highly flammable gas) for Hydrogen Chloride.

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.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS:

Use enclosures and local exhaust ventilation as necessary to limit exposure below the ceiling limit. Exhaust gas should be vented to a gas treatment system.

EYE/FACE PROTECTION:

Full faceshield with safety goggles or full facepiece respirator.

SKIN PROTECTION:

Appropriate protective and chemical resistant gloves, clothing and splash protection, or fully encapsulating vapor protective clothing to prevent exposure. For materials of construction, consult protective clothing manufacturer's specific data.

RESPIRATORY PROTECTION:

For emergency release and conditions with exposure above the applicable limits use a positive pressure NIOSH approved air-supplying respiratory systems (SCBA or airline/escape bottle) using a full-face mask and at a minimum Grade D air.

OTHER/GENERAL PROTECTION:

Safety shoes safety shower, eye wash fountain.

PRODUCT NAME: HYDROGEN CHLORIDE**9. Physical and Chemical Properties**

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure at 21 ° C	: 627.7psia	
Vapor density at 210 ° C (Air = 1)	: 1.27	
Boiling point	: -85	°C
Freezing point	: -114	C
PH	: Acidic	
Specific gravity	: 1.266 @ 21 ⁰ C	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O @ 0 ° C)	: 506 grams per liter	
Odor threshold	: Not Available	
Odor and appearance	: Colorless gas with sharp pungent odor	
Molecular Weight	: 36.465	

10. Stability and Reactivity

STABILITY: Stable.

INCOMPATIBLE MATERIALS/CONDITIONS: Reacts with water or moisture in the air yielding dense, acrid HCl fumes. Reacts with fluorine, calcium carbide, cesium carbide rubidium carbide and lithium silicide. Reacts vigorously with alkalis and many organic materials with liberation of heat. Strong oxidizers cause release of chlorine. Hydrochloric acid solutions react with metals to release flammable hydrogen gas

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric acid on hydrolysis.

HAZARDOUS POLYMERIZATION: Does not occur.

11. Toxicological Information

SKIN AND EYE: Hydrogen Chloride gas will cause skin and eye damage at high concentrations. Direct contact with Hydrochloric Acid causes immediate burns..

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.

OTHER: embryo and fetotoxicity has been observed in female rats exposed to maternally toxic levels of hydrogen chloride (302 ppm, 1 hour). Corrosion of the teeth has been reported following long term exposure.

12. Ecological Information

does not contain Class I or Class II ozone depleting substances. See section 3 for ecotoxicity information. Hydrogen Chloride is a CERCLA hazardous substance with Reportable Quantity (RQ) of 5,000 pounds and is listed as an extremely hazardous substance (EHS) with a Threshold Planning Quantity (TPQ) of 500 pounds

PRODUCT NAME: HYDROGEN CHLORIDE

13. Disposal Considerations

Do not attempt to dispose of residual 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 BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	India
PROPER SHIPPING NAME:	Hydrogen Chloride, compressed
HAZARD CLASS:	2.3 (8)
IDENTIFICATION NUMBER:	UN 1050
SHIPPING LABEL:	NONFLAMMABLE GAS

Compressed gas cylinders shall 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).