

MATERIAL
SAFETY
DATA SHEET

PRODUCT NAME Hydrogen Bromide	CAS# 10035-10-6
TRADE NAME AND SYNONYMS Hydrogen Bromide, anhydrous (D.D.T.)	DOT I.D. NO. UN 1048
CHEMICAL NAME AND SYNONYMS Hydrogen Bromide; Anhydrous Hydrobromic Acid	DOT HAZARD CLASS Division 2.3
ISSUE DATE AND REVISIONS Revised July 2007	FORMULA HBr

HEALTH HAZARD DATA

<p>EMERGENCY OVERVIEW</p> <p>Hydrogen Bromide is a corrosive, colorless, irritating, nonflammable, toxic gas with a suffocating odor. Also, it may cause eye, skin, and respiratory tract burns.</p>
<p>SYMPTOMS OF EXPOSURE</p> <p>Corrosive and irritating to the upper and lower respiratory tracts, skin and eyes. It hydrolyzes very rapidly yielding hydrobromic 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 that could be fatal. Hydrobromic acid burns exhibit severe pain, redness, possible swelling and early necrosis.</p>
<p>TOXICOLOGICAL PROPERTIES</p> <p>Hydrogen Bromide is irritating and corrosive to all living tissue. Toxic level exposure to dermal tissue causes hydrobromic 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 may result in lesions and possible loss of vision.</p> <p>Persons in ill health where such illness would be aggravated by exposure to hydrogen bromide should not be allowed to work with or handle this product.</p>
<p>RECOMMENDED FIRST AID TREATMENT</p> <p>PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO HYDROGEN BROMIDE. RESCUERS SHOULD BE EQUIPPED WITH ADEQUATE PERSONAL PROTECTIVE APPARATUS.</p> <p><u>Inhalation:</u> Conscious person 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.</p> <p><u>Eye Contact:</u> PERSONS WITH POTENTIAL EXPOSURE TO HYDROGEN CHLORIDE SHOULD NOT WEAR CONTACT LENSES. Flush contaminated eye(s) with copious quantities of water for minimum of 15 minutes. Part eyelids with fingers to assure complete flushing.</p> <p><u>Skin Contact:</u> Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible.</p>

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Reacts with moisture in the air yielding dense, acid fumes. It reacts explosively with ozone and vigorously with ammonia.

PHYSICAL DATA

BOILING POINT -88 °F (-67 °C)	LIQUID DENSITY AT BOILING POINT 134.8 lb/ft ³ (2159 kg/m ³)
VAPOR PRESSURE @ 70 °F (21.1°C) = 335 psia (2310 kPa)	GAS DENSITY AT 70 °F, 1 atm 0.209 lb/ft ³ (3.35 kg/m ³)
SOLUBILITY IN WATER Soluble	FREEZING POINT -125 °F (-87 °C)
EVAPORATION RATE N/A, dissolved gas	SPECIFIC GRAVITY (AIR=1) @ 70 °F (21.1°C) = 2.79
APPEARANCE AND ODOR Colorless gas with a pungent, suffocating odor. Liquid is water white.	

FIRE AND EXPLOSION HAZARD DATA

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

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		N/A
Stable	X	
INCOMPATIBILITY (Materials to avoid) Ammonia, ozone and oxidizing agents.		
HAZARDOUS DECOMPOSITION PRODUCTS Hydrobromic acid on hydrolysis.		
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur		N/A
Will Not Occur	X	

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 cylinder or cylinder valve, contact HSG for special advice.
WASTE DISPOSAL METHOD Waste disposal must be in accordance with appropriate Federal, State, and local regulations. For emergency disposal assistance, contact HSG for specific advice.

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.	SPECIAL N/A
MECHANICAL (Gen.) N/A	OTHER N/A
LOCAL EXHAUST To prevent accumulation above the Ceiling Limit for HBr.	
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 Bromide DOT Shipping Label: Toxic Gas and Corrosive	DOT Hazard Class: Division 2.3 I.D. No.: UN 1048
SPECIAL HANDLING RECOMMENDATIONS Use only in well-ventilated areas. Valve protection caps must remain in place 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 system. 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.	
SPECIAL STORAGE RECOMMENDATIONS Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavy traffic areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°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 being stored for excessive periods of time.	
SPECIAL PACKAGING RECOMMENDATIONS Most metals corrode rapidly with wet Hydrogen Bromide.	
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 Law.	

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