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MSDS: Hydrogen Bromide

PRODUCT INFORMATION

PRODUCT: Hydrogen Bromide

TRADE NAME: Hydrogen Bromide

CHEMICAL NAME: Hydrogen Bromide; Anhydrous Hydrobromic Acid

SYNONYMS: Hydrobromic Acid, Anhydrous

FORMULA: HBr

CHEMICAL FAMILY: Inorganic Acid

SUPPLIER'S NAME: MEGS Inc.

SUPPLIER'S ADDRESS: 2675 De Miniac
Ville St-Laurent, Qc, H4S 1E5

EMERGENCY PHONE NUMBER: (514) 956-7503

MOLECULAR WEIGHT: 80.91

PRODUCT USE: Various

PRODUCT IDENTIFICATION NUMBER: UN 1048

HAZARDOUS INGREDIENTS

CHEMICAL ID	CONCENTRATION	CAS #	LD(50)	LC(50)
	100%			
Hydrogen Bromide		10035-10-6	None published	Inhl-Rat 2858 ppm/1 h

PHYSICAL DATA

PHYSICAL STATE: Gas and liquid under pressure

APPEARANCE: Colorless gas and liquid

ODOR: Pungent, suffocating odor

ODOR THRESHOLD: Unknown

SPECIFIC GRAVITY (H_2O = 1): See Vapor Density (air =1)

VAPOR PRESSURE:	1934 kPa @ 15°C
VAPOR DENSITY (air = 1):	2.79
EVAPORATION RATE:	Not applicable (gas)
BOILING POINT:	-66.72°C
FREEZING POINT:	-86.86°C
pH:	Acidic
GAS DENSITY:	Vapor 3.33 kg/m³ @ 15°C, 101.3 kPa
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Very soluble in water

FIRE OR EXPLOSION HAZARD

CONDITIONS OF FLAMMABILITY:	Nonflammable gas
MEANS OF EXTINCTION:	Nonflammable gas
FLASHPOINT AND METHOD OF DETERMINATION:	Nonflammable gas
UPPER EXPLOSION LIMIT (% BY VOL):	Nonflammable gas
LOWER EXPLOSION LIMIT (% BY VOL):	Nonflammable gas
AUTO-IGNITION TEMPERATURE:	Nonflammable gas
FLAMMABILITY CLASSIFICATION:	Nonflammable gas
HAZARDOUS COMBUSTION PRODUCTS:	Nonflammable gas
EXPLOSION DATA:	Nonflammable gas
SENSITIVITY TO STATIC DISCHARGE:	None

REACTIVITY DATA

CHEMICAL STABILITY:	Stable under normal conditions. In steel storage containers, HBr may decompose into bromine and hydrogen due to surface catalytic action. Rate increases with increasing temperature.
INCOMPATIBLE MATERIALS:	Ammonia, ozone and oxidizing agents
CONDITIONS OF REACTIVITY:	Water and heat to produce corrosive and irritating fumes
HAZARDOUS DECOMPOSITION PRODUCTS:	On hydrolysis, hydrobromic acid

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY:

SKIN CONTACT: Skin burns and mucosal irritation are like that from exposure to volatile inorganic acids. Hydrobromic acid burns exhibit severe pain, redness, possible swelling and early necrosis.

SKIN ABSORPTION: None

EYE: Burns to the eye result in lesions and possible loss of vision.

INHALATION: Corrosive and irritating to the upper and lower respiratory tracts. It hydrolyzes very rapidly yielding hydrobromic acid. Symptoms include lachrymation, cough, labored breathing and excessive salivary and sputum formation. Excessive irritation of the lungs causes acute pneumonitis and pulmonary edema which could be fatal.

INGESTION: None

ACUTE OVER EXPOSURE EFFECTS: Hydrogen bromide is irritating and corrosive to all living tissues. Exposure to dermal tissue causes hydrochloric acid like 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.

CHRONIC OVER EXPOSURE EFFECTS: Not known

EXPOSURE LIMITS: Ceiling limit = 3 molar ppm (ACGIH 1995-1996)

IRRITANCY OF PRODUCT: See Skin and Eyes, above.

SENSITIZATION TO MATERIAL: None known

CARCINOGENICITY, REPRODUCTIVE EFFECTS: None known

TERATOGENICITY, MUTAGENICITY: None known

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: Other anhydrous inorganic acids

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Kel-F® or Teflon® gloves. Safety goggles or safety glasses and face shield. Safety shoes, safety shower and

eyewash "fountain".

SPECIFIC ENGINEERING CONTROLS: Most metals corrode rapidly with wet hydrogen bromide. Copper-nickel alloys and copper-tin alloys as well as stainless steel and nickel-chromium alloys offer the best resistance to HBr. corrosion. Kel-F® and Teflon® are best for gasketing materials. Do not use Buna S®, Buna N® or Neoprene®.

LEAK AND SPILL PROCEDURES: 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 on container or container valve, contact the closest MEGS location.

WASTE DISPOSAL: 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 MEGS for proper disposal. For emergency disposal, contact the closest MEGS location.

HANDLING PROCEDURES AND EQUIPMENT: USE ONLY IN WELL-VENTILATED AREAS.
Valve protection caps must remain in place unless is secured with valve outlet piped to the point of use. 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. Close valve after each use and when empty.

STORAGE REQUIREMENTS: 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 must 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.

TDG CLASSIFICATION: 8 (6.1)

WHMIS CLASSIFICATION: A, D1, E

SPECIAL SHIPPING INFORMATION: 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.

FIRST AID MEASURES

SPECIFIC FIRST AID PROCEDURES: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO HYDROGEN BROMIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

INHALATION: Conscious persons should be moved to an uncontaminated area and given assisted respiration and supplemental oxygen. Keep the victim warm and quiet. Assure that mucous 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.

EYE CONTACT: PERSONS WITH POTENTIAL EXPOSURE TO HYDROGEN BROMIDE 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.

PREPARATION INFORMATION

PREPARED BY: Safety Department

DATE PREPARED: 01/01/1999

LAST REVISION DATE: 10/01/2003