

Common Name: **HYDROGEN BROMIDE**

Synonyms: Anhydrous Hydrobromic Acid; Hydrogen Monobromide

CAS No: 10035-10-6

Molecular Formula: HBr

RTK Substance No: 1011

Description: Colorless gas with a strong, irritating odor, which is found as a liquefied compressed gas or in solution

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
3 - Health 0 - Fire 0 - Reactivity DOT#: UN 1048 (Anhydrous) UN 1788 (Solution) ERG Guide #: 125 (UN 1048) 154 (UN 1788) Hazard Class: 2.3 (Poisonous Gas)	Extinguish fire using an agent suitable for type of surrounding fire. Hydrogen Bromide itself does not burn. DO NOT USE WATER directly on Hydrogen Bromide but use water to knock down vapors. POISONOUS GASES ARE PRODUCED IN FIRE. CONTAINERS MAY EXPLODE IN FIRE. Use water spray to keep fire-exposed containers cool. DO NOT get water inside containers.	Hydrogen Bromide reacts violently with STRONG BASES (such as SODIUM HYDROXIDE and POTASSIUM HYDROXIDE); AMINES; OZONE; OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); and many ORGANIC COMPOUNDS, causing fires and explosions. Hydrogen Bromide will react with METALS (such as COPPER, BRASS and ZINC) to release flammable and explosive <i>Hydrogen gas</i> .

SPILL/LEAKS

Isolation Distance:

Small Spill: 30 meters (100 feet)

Large Spill: 300 meters (1,000 feet)

Fire: 800 meters (1/2 mile)

Cover liquid spill with dry lime, sand or soda ash and place into sealed containers for disposal.

DO NOT wash into sewer.

Stop flow of gas. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place in the open air, and repair leak or allow cylinder to empty.

Turn leaking cylinder with leak up to prevent escape of gas in the liquid state.

Neutralize water spills with lime, soda ash or sodium bicarbonate.

Hydrogen Bromide is toxic to aquatic life.

PHYSICAL PROPERTIES

Odor Threshold:	2 ppm
Flash Point:	Nonflammable
Vapor Pressure:	>760 mm Hg at 68°F (20°C)
Specific Gravity:	3.5 (gas), 2.7 (solution)
Water Solubility:	Soluble
Boiling Point:	-88.2°F (-66.8°C) (gas), 165°F (74°C) (solution)
Freezing Point:	-121°F (-85°C) (gas)
Critical Temp:	193.6°F (89.8°C) (gas)
Ionization Potential:	11.62 eV
Molecular Weight:	80.92

EXPOSURE LIMITS

OSHA: 3 ppm, 8-hr TWA

NIOSH: 3 ppm, Ceiling

ACGIH: 2 ppm, Ceiling

IDLH: 30 ppm

The Protective Action Criteria values are:

PAC-1 = 3.3 ppm PAC-2 = 72.8 ppm PAC-3 = 397 ppm

PROTECTIVE EQUIPMENT

Gloves:	Neoprene, Viton and Barrier® (>8-hr breakthrough for <i>Inorganic Acids</i>)
Coveralls:	Tychem® BR, Responder® and TK® (>8-hr breakthrough)
Respirator:	SCBA

HEALTH EFFECTS

Eyes:	Severe irritation, burns and possible eye damage
Skin:	Severe irritation and burns. Contact with <i>liquid</i> may cause frostbite
Inhalation:	Nose, throat and lung irritation, with coughing, and severe shortness of breath (pulmonary edema) Headache, nausea and vomiting

FIRST AID AND DECONTAMINATION

Remove the person from exposure.

Flush eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention immediately

Quickly remove contaminated clothing and wash contaminated skin with large amounts of water. Seek medical attention immediately.

For contact with *liquid Hydrogen Bromide* immerse affected part in warm water.

Begin artificial respiration if breathing has stopped and CPR if necessary. Transfer promptly to a medical facility.

Medical observation is recommended as symptoms may be delayed.