HYDROBROMIC ACID, 47-49%

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1. Product Identification

Synonyms: Hydrogen Bromide Solution
CAS No.: 10035-10-6
Molecular Weight: 80.91
Chemical Formula: HBr in water
Product Codes: CHEM-237 and others

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Hydrogen Bromide	10035-10-6	47 - 49%	Yes
Water	7732-18-5	51 - 53%	No

3. Hazards Identification

Emergency Overview
DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. VAPOR IS SEVERELY IRRITATING TO EYES AND RESPIRATORY TRACT. MAY BE FATAL IF SWALLOWED OR INHALED.

Health Rating: 4 - Extreme
Flammability Rating: 0 - None
Reactivity Rating: 2 - Moderate
Contact Rating: 4 - Extreme (Corrosive)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: White (Corrosive)

Potential Health Effects
Inhalation:
Corrosive to the respiratory tract. Symptoms may include sore throat, coughing, shortness of breath, and labored breathing. In severe cases, exposures may result in pulmonary edema and death.
Ingestion:
Poison! Highly corrosive. Sore throat, abdominal pain, nausea, vomiting and diarrhea may occur. Vomiting may produce a severe lung hazard. Estimated fatal dose: 1 ml.

Skin Contact:
Corrosive. Discoloration, pain and serious skin burns are possible.
Eye Contact:
Vapors are corrosive to the eyes. Redness, pain, and blurred vision may occur. Splashes may cause severe burns.
Chronic Exposure:
Prolonged or repeated exposure to vapors may cause skin and respiratory tract irritation.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard.
Explosion:
Not considered to be an explosion hazard. Can react with base metals to form combustible hydrogen gas.
Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool.
Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! J. T. Baker NEUTRASORB® acid neutralizers are recommended for spills of this product.

7. Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
OSHA Permissible Exposure Limit (PEL): 3 ppm (TWA)
ACGIH Threshold Limit Value (TLV): 2 ppm Ceiling

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a full facepiece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres. The above cartridge system is not specifically approved for HBr. (3M Respirator Selection Guide)

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
Colorless to yellowish liquid.

Odor:
Pungent odor.

Solubility:
Infinitely soluble.

Specific Gravity:
1.5

pH:
No information found.

% Volatiles by volume @ 21C (70F):
100 (as water and acid)

Boiling Point:
122C (252F) @ 700 mm. Hg

Melting Point:
-11C (12F)

Vapor Density (Air=1):
2.8
Vapor Pressure (mm Hg):
No information found.
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Darkens on exposure to air or light.
Hazardous Decomposition Products:
May form toxic fumes of bromides when heated to decomposition.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Reacts violently with fluorine gas, ammonia, ozone, ferric oxide, alkalis, metals and strong oxidizing agents.
Conditions to Avoid:
Light, heat, air and incompatibles.

11. Toxicological Information

Inhalation (Rat) LC50: 2858 ppm/1-hour (anhydrous HBr)

	Cancer Lists		
	NTP Carcinogen		
Ingredient	Known	Anticipated	IARC Category
Hydrogen Bromide (10035-10-6)	No	No	None
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)
Proper Shipping Name: HYDROBROMIC ACID
Hazard Class: 8
UN/NA: UN1788
Packing Group: II
Information reported for product/size: 4L

International (Water, I.M.O.)
Proper Shipping Name: HYDROBROMIC ACID
Hazard Class: 8
UN/NA: UN1788
Packing Group: II
Information reported for product/size: 4L

International (Air, I.C.A.O.)
Proper Shipping Name: HYDROBROMIC ACID
Hazard Class: 8
UN/NA: UN1788
Packing Group: II
Information reported for product/size: 4L

15. Regulatory Information

—————\Chemical Inventory Status - Part 1\—————————————————

Ingredient	TSCA	EC	Japan	Australia
Hydrogen Bromide (10035-10-6)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Y es

—————\Chemical Inventory Status - Part 2\—————————————————

	—Canada—			
Ingredient	Korea	DSL	NDSL	Phil.
Hydrogen Bromide (10035-10-6)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

—————\Federal, State & International Regulations - Part 1\—————————

	-SARA 302-		———SARA 313———	
Ingredient	RQ	TPQ	List	Chemical Catg.
Hydrogen Bromide (10035-10-6)	No	No	No	No
Water (7732-18-5)	No	No	No	No

—————\Federal, State & International Regulations - Part 2\—————————

	-RCRA-	-TSCA-		
Ingredient	CERCLA		261.33	8(d)
Hydrogen Bromide (10035-10-6)	No		No	No
Water (7732-18-5)	No		No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Pure / Liquid)

Australian Hazchem Code: 2R
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **0** Reactivity: **0**
Label Hazard Warning:
DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. VAPOR IS SEVERELY IRRITATING TO EYES AND RESPIRATORY TRACT. MAY BE FATAL IF SWALLOWED OR INHALED.
Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.
Product Use:
Laboratory Reagent and Consumer Hobby
Revision Information:
No Changes.
Disclaimer:
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