

Description

Mercury Control HBr solution is a heavy, corrosive liquid with a sharp, pungent odor and a color ranging from colorless to pale yellow. This product contains a trace amount of hydrazine (10 ppm maximum) to improve its color stability.

Applications

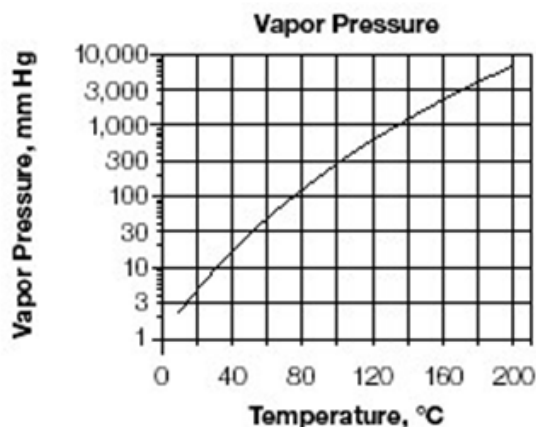
Pollution Control

Specifications

Hydrogen Bromide, % wt48.0 ±1.0
 Free bromine, ppm≤75
 Specific gravity, 25/25°C..... ≥ 1.480
 Color, APHA.....≤150

Typical Properties

Appearance.....colorless to yellow liquid
 Boiling point, °F/°C..... 126
 Specific gravity, 25/25°C1.49
 Odor.....pungent, sharp, irritating
 Density, lbs/gal, 25°C12.4
 Viscosity at 25°C, centipoise1.5
 Vapor pressure, mm Hg, 20°C4.5
 Freezing point, °C -63
 Solubility in water infinite
 Vapor density (air = 1) for HBr gas2.8



The calculated values are expected to be within 5% of the true values.

$\ln P(\text{mm Hg}) = 20.817 - 5660/(T + 273.15)$ where T is in °C.

The plot is based on the above equation, developed from a study of data from several sources, including the data of Wuster, Haase, Vrevskii, Chevalier and Bonner as well as the heat of solution of HBr taken from the NBS Tech Note 270-3 and the osmotic and mean activity coefficients for HBr from the J. Phys. Chem. Ref. Data.

Compatibility

Storage Tanks

Fiberglass reinforced plastic (FRP) tanks are the most appropriate choice for storage of Mercury Control HBr solution. An epoxy-novolac vinyl ester resin such as Dow Derakane® 470-300, or equal is recommended. The corrosion barrier (interior layer) should have a nominal thickness of 110 mils (0.110 in / 2.8 mm), consisting of 2 layers of Nexus® apertured synthetic veil, followed by either 2 layers of 1½ oz/ft² E-CR chopped strand mat (CSM) or 4 layers of ¾ oz/ft² E/CR CSM. A white-pigmented gelcoat (following final inspection) is recommended for the exterior of the tank to minimize radiant heating of the tank.

Glass-lined carbon steel ASME Section VIII Code pressure vessels (or equivalent international code) are also suitable.

Pipes, Pumps, Valves

FRP-Derakane 470 or 411 and carbon steel-lined with Teflon® (PTFE, FEP or PFA), PVDF, high-density polyethylene (HDPE) or polypropylene (PP) are acceptable materials of construction for pipes, pumps and valves, at ambient temperatures. Live-loaded PTFE valve packing is recommended, using Belleville spring washers. Due to the concern for permeation-related problems such as substrate attack and dimensional changes, PTFE Teflon®-lined products should be used with caution.

Gaskets, Hoses, O-Rings

Full-face gaskets made of Viton® (FKM), ethylene propylene diene monomer (EPDM), natural rubber (NR), or Isoprene (IR) are recommended for FRP or solid plastic flanged connections, while PTFE-based ring gaskets such as Garlock Gylon® and Gore Gore-Tex® GR or Universal Pipe Gasket are recommended for plastic-lined steel flanged connections.

Hoses made of Viton (FKM) or EPDM are considered satisfactory for HBr service, however the use of an armored hose is recommended, such as the Crane-Resistoflex® TRC hose. This hose has a PTFE smooth bore liner, EPDM rubber body with CS wire reinforcement, and carbon steel lap joint stub ends with 150 lb ductile iron lap joint flanges.

O-rings to be used in mechanical seals and valves for HBr service should be made of either a peroxide-cured grade of Viton (FKM) or Kalrez® (FFKM), as these types of applications have a low tolerance for permeation swelling and gradual chemical attack that occurs in the lower grade (non-fluorinated) elastomers.

The only metals that have reliable resistance to HBr solutions are tantalum and niobium.

Additional information and recommendations on materials of construction for specific equipment, instrumentation, piping or valves may be obtained by contacting Albemarle Corporation.

Shipping Information

Container Information/Shipping Classification

Available in tank trucks, 275-gallon IBCs, and 55-gallon drums.

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| Proper shipping name: | Hydrobromic Acid |
| DOT Hazard Class: | 8 (corrosive) |
| DOT ID number: | UN1788 |
| DOT Packing Group: | PG II |

Chemical Registration Numbers

CAS: 10035-10-6
EINECS: 233-113-0
MITI: 1-105

Safety and Handling Information

Drums of Mercury Control HBr solution should be stored in a safe, cool, dry place out of the sun and away from oxidizing substances.
For specific safety and handling information, please refer to the Material Safety Data Sheet, available upon request.

The information presented herein is believed to be accurate and reliable, but is presented without guarantee or responsibility on the part of Albemarle Corporation and its subsidiaries. It is the responsibility of the user to comply with all applicable laws and regulations and to provide for a safe workplace. The user should consider any health or safety hazards or information contained herein only as a guide, and should take those precautions which are necessary or prudent to instruct employees and to develop work practice procedures in order to promote a safe work environment. Further, nothing contained herein shall be taken as an inducement or recommendation to manufacture or use any of the herein materials or processes in violation of existing or future patent.



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