ALBEMARLE®

# HBr
## Anhydrous Liquid

**Description**

HBr, anhydrous liquid, is a colorless gas with pungent odor at atmospheric pressure.
Chemical formula: HBr

**Applications**

This product is used in a broad range of applications, including gas etching of semiconductor chips, synthesis of inorganic bromides, synthesis of alkyl bromides from alcohols and hydrobromination of olefins.

**Specifications**

Assay, calculated, wt %, min.....99.80
HCl, mg/kg, max.....200
Sulfate, mg/kg, max.....1

**Physical Properties**

Appearance..... gas at atmospheric pressure
Molecular weight..... 80.92
Density, 0 °C, g/cm$^3$ (lbs/gal), approx..... 1.85 (15.4)
Boiling point, 760 mm Hg, °C (°F), approx..... -67 (-88)
Melting point, °C (°F), approx..... -87 (-124)

| T, °C | Vapor Pressure, bar | Liquid Density, g/cc |
|---|---|---|
| -40 | 3.40 | 2.06 |
| -30 | 4.96 | 2.01 |
| -20 | 7.01 | 1.95 |
| -10 | 9.64 | 1.90 |
| 0 | 12.9 | 1.85 |
| 10 | 17.0 | 1.79 |
| 20 | 21.9 | 1.73 |
| 30 | 27.7 | 1.66 |
| 40 | 34.4 | 1.59 |
| 50 | 42.2 | 1.52 |
| 60 | 51.1 | 1.43 |
| 70 | 61.1 | 1.34 |
| 80 | 72.0 | 1.21 |

Vapor Pressure in bar, t in Kelvin:

$$P(t) := e^{11.637 - \frac{2221}{t} - 0.146 \cdot \ln(t) - 1.701 \cdot 10^{-6} \cdot t^2}$$

Ref: Stull, D.R., Vapor Pressure of Pure Substances Organic Compounds, Ind. Eng. Chem., 1947, 39, 517-540 (Refit and extrapolated to critical point by Albemarle Corporation)

Liquid Density g/cc, t in Kelvin:

$$p(t) := \frac{0.2325}{0.2764^{\left[1 + \left(1 - \frac{t}{Tc}\right)^{0.3533}\right]}}$$

Where: Tc = 363.2K

Ref: Experimental data from Albemarle Corporation extrapolated by Albemarle Corporation to normal boiling point and critical point.

## Compatibility

The compatibility information presented below is provided as a guide and is based on available data generated by Albemarle Corporation, our experience with similar products, and from literature. It is the user's responsibility to develop data with the actual materials of construction and at the intended use conditions.

At ambient temperatures, dry aHBr (dew point of –40 °C) is expected to be compatible with carbon steels, Types 304/347 and 316L stainless steel, Hastelloy® B and C, Inconel®, Monel 400, Nickel 200, platinum, fluoropolymers, fluoroelastomers, halogenated polyesters, polyethylene and polypropylene.

Wet HBr (with water content above the dew point) is very corrosive to metals. Tantalum and niobium are suitable for use in wet HBr service at ambient conditions.

For additional information, please contact us.

## Shipping Information

**Container Information**
1-MT multi-unit tank
DOT classification: 110A 800W

**Transportation Classification**
Proper shipping name.....Hydrogen bromide, anhydrous
Hazard classification.....2.3 (toxic gas)
ID number.....UN1048
Placard (U.S.).....Toxic gas (primary) corrosive (subsidiary)
Placard (International).....Toxic gas (primary), corrosive (subsidiary)
Label (U.S).....Toxic gas and corrosive
Label (International).....Toxic gas
Mark.....Toxic inhalation hazard and Hydrogen bromide, anhydrous

## Chemical Registration Numbers

CAS: 10035-10-6
EINECS: 233-113-0

## Safety and Handling Information

For specific safety, handling and toxicity information, please refer to the current Material Safety Data Sheet (MSDS).



ALBEMARLE®

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