ALBEMARLE® CORPORATION

METHYL BROMIDE-TECHNICAL

Description

Methyl bromide-technical is a clear, colorless to pale yellow liquid below 3°C. The gas is odorless and tasteless, thus it does not exhibit good warning properties and should be handled with caution.

Applications

As an intermediate in organic synthesis

Specifications

Water, ppm	≤ 100
Acidity, as HBr, ppm	≤ 10
Methyl bromide, wt %	≥ 99.5

Meets U. S. Federal Specification, O-I-556C Type II, Nonodorized, dated February 5, 1974.

Physical Properties

Appearance as liquid	clear, colorless to pale yellow, free from suspended matter
Molecular weight	94.94
Density, liquid, 0°C, g/mL (lb/gal)	1.73 (14.4)
Density, liquid, 20°C, g/mL (lb/gal)	1.676 (14)
Boiling point, 760 mm Hg, °C	3.6
Freezing point, °C	-94
Autoignition temperature, °C	537
Critical temperature, °C	194
Vapor pressure, mm Hg, 0°C	660
Vapor pressure, mm Hg, 20°C	1390
Vapor pressure, mm Hg, 25°C	1640
Flash point, TCC	none
Flammable limits in air, vol. %	9.3 - 17
Solubility in water, 25°C, g/100 g	1.34
Odor	none

Shipping Information

Container Information

Shipments are made in tank cars and ISO tanks.

Shipping Classification

Proper shipping name:	Methyl bromide
Hazard classification:	2.3
Identification number:	UN1062
Placard:	poison gas
Label:	DOT – poison gas
	IMO – poison gas and flammable gas
Mark:	poison-inhalation hazard

Safety and Handling Information

Methyl bromide vapors are colorless and odorless. Commercially, it is handled in liquefied form under pressure. Methyl bromide has no flash point with standard flash point equipment. Conditions to avoid when handling methyl bromide include a damp or wet atmosphere (keep dry during storage) and high temperatures. Over a narrow concentration range, it forms a flammable mixture with air. Liquid methyl bromide vaporizes rapidly when released to the atmosphere. In contact with an open flame or high temperature, hydrogen bromide and other toxic gases are formed.

Carbon steel is the recommended material of construction for storage tanks, piping, pumps, valves and fittings. Materials of construction to avoid include aluminum (methyl bromide attacks aluminum, forming pyrophoric methylaluminum sesquibromide), magnesium, zinc, alloys of aluminum and magnesium and zinc-coated (galvanized) steel. Cast iron and ductile iron are not recommended due to their brittle nature. Methyl bromide should be kept dry because corrosivity increases with water content. Tank car liquid and vapor connections can be of the balance loading arms type using flexible joints such as “chicksan” or flexible hose. Cross-linked polyethylene hose (All Chem, Blue Flexwing or equal) or flexible metal hose of the proper pressure rating (Flexonics FS-51 or equal) are satisfactory.

The OSHA permissible exposure limit for methyl bromide is 20 parts per million (ppm), ceiling. The ACGIH TLV is 1 ppm as an 8-hour time-weighted average (skin). Contact with liquid methyl bromide can cause burns to the eyes and skin. Vapor trapped next to the skin can cause delayed burns. This material is very toxic by inhalation. Exposure to methyl bromide can cause dizziness, nausea, vomiting, headache, loss of consciousness and dimming of vision. Respiratory tract irritation and damage may occur, resulting in pulmonary edema. These symptoms can be delayed 2 to 48 hours. Long-term exposure to methyl bromide vapors can cause nervous system damage.

To avoid overexposure during handling, a detector tube or other type of monitoring device should be used to detect the presence of methyl bromide vapors.

A full facepiece supplied-air respirator should be used any time methyl bromide exposure is possible. Approved safety glasses or chemical goggles should be worn for eye protection. Anyone handling this material should wear loose fitting clothing and should not wear chemical protective clothing or gloves. In case of contact with eyes, the eyes should be irrigated with cool water for at least 15 minutes. If skin contact occurs, all the contaminated clothing, including shoes, should be removed and the skin flushed with copious amounts of water. The contaminated clothing should not be reused. Anyone who is exposed should seek medical attention and should be observed for at least 48 hours because symptoms can be delayed.

For specific safety and handling information please refer to the Material Safety Data Sheet, which is available upon request.

Chemical Registration Numbers

CAS: 74-83-9

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