



AGA GAS, INC. (216) 642-6600
6055 ROCKSIDE WOODS BLVD
P.O. BOX 94737
CLEVELAND, OH 44101-4737

MATERIAL
SAFETY
DATA SHEET

No. 42

PRODUCT NAME Methyl Bromide	CAS # 74-83-9
TRADE NAME AND SYNONYMS Methyl Bromide; Bromomethane	DOT I.D. No.: UN 1062 RQ 1,000 (154)
CHEMICAL NAME AND SYNONYMS Methyl Bromide; Bromomethane	DOT Hazard Class: Division 2.3
ISSUE DATES AND REVISIONS Revised May 1998	Formula CH ₃ Br
	Chemical Family: Alkyl Halide

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT

5 Molar PPM with Skin Notation and a A4 (Not Classifiable as a Human Carcinogen) carcinogen rating (ACGIH 1997). OSHA 1995 Ceiling limit (Continued on Page 4)

SYMPTOMS OF EXPOSURE

Inhalation: Low concentrations cause dizziness, sleepiness, and headache coupled with occasional digestive problems.

Acute intoxication causes similar symptoms initially but serious symptoms may be delayed for several hours. These symptoms include loss of stability, lack of motor coordination, (Continued on Page 4)

TOXICOLOGICAL PROPERTIES

Its action is on the central nervous system, resulting in all of the symptoms as outlined above. Persistent problems may include pulmonary edema and kidney damage. Most symptoms disappear after a few days after a mild exposure; however, numbness of the extremities and visual disturbances may continue for longer periods.

IARC indicates limited evidence for animals and inadequate evidence for humans as a carcinogen or potential carcinogen. NTP carcinogenesis studies reported "on test" in 1987. OSHA 1989 does not list methyl bromide as a carcinogen or potential carcinogen. (Continued on Page 4)

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO METHYL BROMIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS AND BE COGNIZANT OF MODEST FIRE HAZARD.

Inhalation: Conscious persons should be assisted to an uncontaminated area and breathe fresh air supplemented with oxygen. Absolute rest is indicated for a period of at least 48 hours. The physician should be informed concerning the potential for pulmonary edema and renal problems. Continued treatment should be symptomatic and supportive. Unconscious persons should be given assisted respiration as well as oxygen and when breathing is restored, treated as above. Continued intermittent oxygen administration is also recommended.(Continued on Page 4)

Information contained in this material safety data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this Company or others covering any process, composition of matter or use. Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.

METHYL BROMIDE

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Methyl bromide is flammable in air over a very narrow range. It reacts with aluminum and its alloys forming aluminum methylated compounds which are flammable spontaneously in air.

PHYSICAL DATA

BOILING POINT 40.3°F (4.6°C)	LIQUID DENSITY AT BOILING POINT 107.5 lb/ft ³ (1722 kg/m ³)
VAPOR PRESSURE @ 70°F (21.1°C) = 29.3 psia (202 kPa)	GAS DENSITY AT 70°F, 1 atm 0.251 lb/ft ³ (4.02 kg/m ³)
SOLUBILITY IN WATER Slightly soluble	FREEZING POINT -135.4°F (-93°C)
EVAPORATION RATE Unknown	SPECIFIC GRAVITY (AIR=1) @ 70°F (21.1°C) = 3.35
APPEARANCE AND ODOR Colorless, practically odorless gas. At high concentrations has a sweetish, chloroform-like odor	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) Undertermined	AUTO IGNITION TEMPERATURE 999°F (537°C)	FLAMMABLE LIMITS % BY VOLUME (See Page 4) LEL 13.5 UEL 14.5
EXTINGUISHING MEDIA Water, carbon dioxide, dry chemical		ELECTRICAL CLASSIFICATION Class 1, Group not specified
SPECIAL FIRE FIGHTING PROCEDURES If containers are involved in a fire, safely relocate or keep cool with water spray.		
UNUSUAL FIRE AND EXPLOSION HAZARDS None		

REACTIVITY DATA

STABILITY Unstable		CONDITIONS TO AVOID None
Stable	X	
INCOMPATIBILITY (Materials to avoid) Aluminum and its alloys		
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen bromide, carbonyl bromide and carbon monoxide		
HAZARDOUS POLYMERIZATION May Occur		CONDITIONS TO AVOID None
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact your closest supplier location or call the emergency telephone number listed herein.
WASTE DISPOSAL METHOD Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to your supplier. For emergency disposal assistance, contact your closest supplier location or call the emergency telephone number listed herein.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)	Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.	
VENTILATION Hood with forced ventilation	LOCAL EXHAUST To prevent accumulation above the TWA	SPECIAL N/A
	MECHANICAL (Gen.) In accordance with electrical codes	OTHER N/A
PROTECTIVE GLOVES Teflon® or Kel-F®		
EYE PROTECTION Safety goggles or glasses plus transparent face shield		
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower, eyowash "fountain"		

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION
DOT Shipping Name: Methyl bromide DOT Hazard Class: Division 2.3 DOT Shipping Label: Toxic Gas I.D. No.: UN 1062 (RQ 1,000/454)
SPECIAL HANDLING RECOMMENDATIONS
Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<100 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. For additional handling recommendations, consult Compressed Gas Association's Pamphlet P-1.
SPECIAL STORAGE RECOMMENDATIONS
Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of noncombustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area. For additional storage recommendations, consult Compressed Gas Association's Pamphlet P-1.
SPECIAL PACKAGING RECOMMENDATIONS
The use of zinc, aluminum, and magnesium and their alloys should be avoided. Methyl bromide is not compatible with most plastics and elastomers. Teflon® and Kel- F® are acceptable.
OTHER RECOMMENDATIONS OR PRECAUTIONS
Earth-ground and bond all lines and equipment associated with the methyl bromide system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR). (Continued on Page 4)

*Various Government Agencies (i.e. Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that he is in full compliance.

METHYL BROMIDE

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT: (Continued)

= 20 Molar PPM with a skin designation.

SYMPTOMS OF EXPOSURE: (Continued)

epilepsy, sensorial problems, impaired vision and hearing, mental confusion, a depressive syndrome and hallucinations.

Very serious intoxication results in death following a series of epileptic fits. Pulmonary and kidney damage have also been observed.

Skin and Eye Contact: Liquid contacting the skin causes burns like 1st and 2nd degree thermal burns. If splashed in the eyes, symptoms range from conjunctivitis to temporary blindness.

TOXICOLOGICAL PROPERTIES: (Continued)

Persons in ill health or with cardiac, liver, or neurological problems should not be allowed to work with or handle this product.

RECOMMENDED FIRST AID TREATMENT: (Continued)

Eye Contact: PERSONS WITH POTENTIAL EXPOSURE TO METHYL BROMIDE SHOULD NOT WEAR CONTACT LENSES.

Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes.

Skin Contact: Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible.

SPECIAL PRECAUTIONS

OTHER RECOMMENDATIONS OR PRECAUTIONS: (Continued)

Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

Methyl bromide is considered a toxic chemical and is subject to the reporting requirements of SARA, Title III, Section 313.

NFPA 704 NO. for methyl bromide = 3 1 0 None