METHYL BROMIDE

MTB

CAUTIONARY RESPONSE INFORMATION

Common Synonyms			
Bromomethane Embafume M-B-C fumigant Monobromomethane	Liquefied gas	Colorless	Odorless to sweet odor

Sinks and boils in water. Poisonous vapor cloud is formed. Boiling point is 39°F.

Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR.
Wear goggles, self-contained breathing apparatus, and protective impervious overclothing (including gloves.)
Call fire department.
Evacuate area in case of large leaks.
Stay upwind and use water spray to ``knock down'' vapor.
Notify local health and pollution control agencies.

Fire

Combustible.
POISONOUS AND IRRITATING GASES ARE PRODUCED IN FIRE.
Wear goggles, self-contained breathing apparatus, and protective overclothing (including gloves).
EXTINGUISH WITH WATER, FOAM, OR CARBON DIOXIDE.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
POISONOUS IF INHALED.
Irritating to eyes.
Move to fresh air.
If breathing has stopped, give artificial respiration (but NOT mouth-to-mouth).
If breathing is difficult, give oxygen.

LIQUID
Will burn skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
DO NOT RUB AFFECTED AREAS.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Not harmful to aquatic life.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: 36; Halogenated hydrocarbon
2.2 Formula: CH_3Br
2.3 IMO/UN Designation: 2.0/1062
2.4 DOT ID No.: 1062
2.5 CAS Registry No.: 74-83-9
2.6 NAERG Guide No.: 123
2.7 Standard Industrial Trade Classification: 51139

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Self-contained breathing apparatus; goggles.
3.2 Symptoms Following Exposure: Inhalation of vapor causes lung congestion and pulmonary edema. Higher concentrations causes rapid narcosis and death. Contact with liquid irritates eyes and burns skin.
3.3 Treatment of Exposure: INHALATION: remove victim to fresh air; give artificial respira- tion if needed. SKIN OR EYES: flush with water for at least 15 min.
3.4 TLV-TWA: 1 ppm (skin)
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Currently not available
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Currently not available
3.10 Vapor (Gas) Irritant Characteristics: Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations.
3.11 Liquid or Solid Characteristics: Fairly severe skin irritant; may cause pain and second-degree burns after a few minutes' contact.
3.12 Odor Threshold: Odorless.
3.13 IDLH Value: 250 ppm
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: 20 ppm (skin)
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

4.1 Flash Point: Practically not flammable.
4.2 Flammable Limits in Air: 10%-15%
4.3 Fire Extinguishing Agents: Not pertinent
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent
4.5 Special Hazards of Combustion Products: Toxic and irritating gases are generated when exposed to fire or heat.
4.6 Behavior in Fire: Containers may explode
4.7 Auto Ignition Temperature: 999°F
4.8 Electrical Hazards: Not pertinent
4.9 Burning Rate: Not pertinent
4.10 Adiabatic Flame Temperature: Currently not available
4.11 Stoichometric Air to Fuel Ratio: Not pertinent.
4.12 Flame Temperature: Currently not available
4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent.
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: No reaction
5.2 Reactivity with Common Materials: No reaction
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

6.1 Aquatic Toxicity: None
6.2 Waterfowl Toxicity: None
6.3 Biological Oxygen Demand (BOD): None
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 3
Human Oral hazard: -
Human Contact hazard: II
Reduction of amenities: X

7. SHIPPING INFORMATION

7.1 Grades of Purity: Commercial: not less than 99.5%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Safety relief
7.5 IMO Pollution Category: Currently not available
7.6 Ship Type: 1
7.7 Barge Hull Type: 1

8. HAZARD CLASSIFICATIONS

8.1 49 CFR Category: Poison gas
8.2 49 CFR Class: 2.3
8.3 49 CFR Package Group: Not pertinent.
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	0
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: 1000 pounds
8.7 EPA Pollution Category: C
8.8 RCRA Waste Number: U029
8.9 EPA FWPCA List: Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Gas
9.2 Molecular Weight: 94.95
9.3 Boiling Point at 1 atm: 38.5°F = 3.6°C = 276.8°K
9.4 Freezing Point: –135°F = –93°C = 180°K
9.5 Critical Temperature: 375.8°F = 191°C = 464.2°K
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.68 at 20°C (liquid)
9.8 Liquid Surface Tension: 24.5 dynes/cm = 0.0245 N/m at 15°C
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: 3.3
9.11 Ratio of Specific Heats of Vapor (Gas): 1.247
9.12 Latent Heat of Vaporization: 108 Btu/lb = 59.7 cal/g = 2.50 X 10^5 J/kg
9.13 Heat of Combustion: –3188 Btu/lb = –1771 cal/g = 74.15 X 10^5 J/kg
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Not pertinent
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: 15.05 cal/g
9.18 Limiting Value: Currently not available
9.19 Reid Vapor Pressure: 45 psia

NOTES

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9.20 SATURATED LIQUID DENSITY	
Temperature (degrees F)	Pounds per cubic foot
35	107.700

9.21 LIQUID HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
-35	0.194
-30	0.195
-25	0.195
-20	0.195
-15	0.195
-10	0.196
-5	0.196
0	0.196
5	0.196
10	0.197
15	0.197
20	0.197
25	0.198
30	0.198
35	0.198

9.22 LIQUID THERMAL CONDUCTIVITY	
Temperature (degrees F)	British thermal unit inch per hour-square foot-F
-90	0.795
-80	0.787
-70	0.779
-60	0.771
-50	0.764
-40	0.756
-30	0.748
-20	0.740
-10	0.732
0	0.724
10	0.716
20	0.708
30	0.700

9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Centipoise
	NOT PERTINENT

9.24 SOLUBILITY IN WATER	
Temperature (degrees F)	Pounds per 100 pounds of water
68	0.090

9.25 SATURATED VAPOR PRESSURE	
Temperature (degrees F)	Pounds per square inch
-70	0.651
-60	0.944
-50	1.340
-40	1.864
-30	2.547
-20	3.424
-10	4.532
0	5.914
10	7.618
20	9.694
30	12.200
40	15.190
50	18.730
60	22.880
70	27.710
80	33.300
90	39.710
100	47.020
110	55.300
120	64.639

9.26 SATURATED VAPOR DENSITY	
Temperature (degrees F)	Pounds per cubic foot
-70	0.01479
-60	0.02090
-50	0.02893
-40	0.03929
-30	0.05244
-20	0.06888
-10	0.08914
0	0.11380
10	0.14350
20	0.17880
30	0.22030
40	0.26890
50	0.32500
60	0.38940
70	0.46270
80	0.54570
90	0.63900
100	0.74310
110	0.85870
120	0.98640

9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	British thermal unit per pound-F
0	0.098
25	0.101
50	0.104
75	0.106
100	0.109
125	0.112
150	0.114
175	0.117
200	0.120
225	0.122
250	0.125
275	0.127
300	0.129
325	0.132
350	0.134
375	0.137
400	0.139
425	0.141
450	0.144
475	0.146
500	0.148
525	0.150
550	0.153
575	0.155
600	0.157