

MATERIAL SAFETY DATA SHEET

- Occupational Health and Safety Act and Regulations (85/1993)
- General Administrative Regulations

Product: Methyl Bromide

COMPANY DETAILS

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1. PRODUCT AND COMPANY IDENTIFICATION:

Trade Name: Landkem Methyl Bromide

Chemical Family: Halogenated Alkanes

Chemical Name: Methane, Bromo-

Synonyms: Monobromoethane, Embafume, Terabol

Chemical Abstract no: 74-83-9

Niosh No: N/A

UN no: 1062 (Liquid) 1955 (Gas)

2. COMPOSITION:

Components/Hazardous components: Methyl Bromide

EEC Classification: N/A

R Phrases: N/A

3. HAZARDS IDENTIFICATION:

Main Hazard: Methyl Bromide can affect you when breathed in and by passing through your skin. Because this is a Mutagen, handle it as a possible carcinogen – with extreme caution.

Flammability: Practical non-flammable

Chemical hazard: Poisonous gases are produced in fires, including Hydrogen Bromide and Carbon Monoxide.

Biological hazard: May cause damage to the kidneys and brain.

Reproduction hazard: May damage the testes (male reproductive glands).

Eye effects: Can irritate and burn eyes.

Health effects—skin: Can irritate, burn skin on contact and cause skin blisters.

Health effects – ingestion: Harmful if swallowed. Can cause headache, nausea, dizziness and convulsions (fits). Very high levels can cause rapid loss of consciousness and death.

Health effects – inhalation: Can irritate the lungs causing coughing and/or shortness of breath. Higher exposure can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency with severe shortness of breath.

Carcinogenicity: Methyl Bromide causes mutations (genetic changes). Such chemicals may have a cancer risk.

Mutagenicity: Methyl Bromide is a mutagen which may have a cancer risk. All contact with this chemical should be reduced to the lowest possible level.

Neurotoxicity: Repeated exposure may cause severe and permanent damage to the brain and the nervous system including poor vision, mental confusion, personality changes, hallucinations, tremor, pain or numbness of the arms and legs, problems with speech and coordination and seizures.

4. FIRST AID MEASURES:

Product in eye Flush eyes with plenty of water for 15 minutes and get medical attention.

Product on skin: Immediately remove contaminated skin covering, including shoes, clothing and adhesive or other bandages. Wash skin thoroughly with soap and water .If irritation or blisters develop get medical attention. Do not reuse shoes or clothing until free of all contamination.

Product ingested:

Product inhaled: Remove patient to fresh air. Call a physician at once. Make sure patient can breathe freely. Keep patient warm and give artificial respiration if breathing has stopped. Oxygen should be administered only by qualified personnel.

Note to physician: Keep patient at rest and under observation for 24 to 48 hours. Inhalation may be fatal or may cause delayed lung injury. Liquid and vapour cause burns which may be delayed. Observe the following precautions – read and follow all label directions and product literature specific to your particular requirements before using. Do not use for any other purpose.

5. FIRE FIGHTING MEASURES:

Extinguishing media: Extinguish fire using an agent suitable for the type of surrounding fire. Methyl Bromide itself does not burn.

Use a water spray to keep fire-exposed containers cool.

Special hazards: Methyl Bromide is practically non-flammable. However, in the presence of a high-energy ignition source it may become a flammable gas. Poisonous gases are produced in a fire, including Hydrogen Bromide and Carbon Monoxide.

Protective Clothing: If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 19810.156.

6. ACCIDENTAL RELEASE MEASURES:

Personal Precautions: Liquid Methyl Bromide – Evacuate people not wearing protective equipment from the area of spill or leak until the clean-up is complete.

Methyl Bromide Gas - Evacuate persons not wearing protective equipment from the area of leak until the clean up is complete.

Remove ignition source and ventilate area of leak to disperse the gas.

Environmental Precautions: No available data

Small spills: Large spills: Liquid Methyl Bromide - Ventilate the area of spill or leak. Absorb liquids in vermiculite, dry sand, earth or a similar material and deposit in sealed containers. It may be necessary to contain and dispose of liquid (Methyl Bromide) as Hazardous Waste.

Methyl Bromide Gas - Ventilate area of leak to disperse the gas. Stop the flow of gas. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place in the open air and repair leak or allow the cylinder to empty.

7. HANDLING AND STORAGE

Suitable material: N/A

Handling/storage precautions: Prior to working with Methyl Bromide you should be trained on its proper handling and storage. Store in tightly closed containers, in a cool, well-ventilated area, away from moisture. Methyl Bromide is not compatible with Oxidizing Agents (such as perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine and fluorine) metals (such as magnesium) dimethyl sulfoxide and ethylene oxide. Methyl Bromide attacks aluminum to form aluminum trimethyl, which is spontaneously flammable. Methyl Bromide is corrosive to tin, magnesium, zinc and other alloys. Sources of ignition, such as smoking and open flames are prohibited where Methyl Bromide is handled, used or stored.

Do not store with foods, seeds or clothing. Store can upright. Storage areas should be secured by lock and key, with a sign posted as pesticide storage, away from dwellings and work areas.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits: OSHA – The legal airborne permissible exposure limits (PEL) is 20ppm not to be exceeded at any time.

NIOSH – Recommends that exposure to occupational carcinogens be limited to the lowest feasible concentration.

ACGIH – The recommended airborne exposure limit is 1pm averaged over an 8-hour work shift.

Above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.

Engineering control measures: Unless a toxic chemical can be substituted for a hazardous substance, engineering controls are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above but is sometimes necessary.

In evaluation the controls present in your work place, consider (1) how hazardous the substance is (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

Personal protection – respiratory: Where the potential exists for exposure over 1ppm use a MSHA/NIOSH approved supplied –air respirator with a full face piece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.

Exposure to 250ppm is immediately dangerous to life and health. If the possibility of exposure above 250ppm exists, use a MSHA/NIOSH approved self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure modes.

Personal protection – hand: Avoid skin contact with Methyl Bromide. Wear protective gloves. Methyl Bromide can penetrate ordinary rubber gloves. Vitron, nitrile or butyl rubber is recommended.

Personal protection – eye: Wear splash-proof chemical goggles and a face shield when working with liquid, unless full face piece respiratory protection is worn.

Personal protection – skin: All protective clothing (suits, footwear, headgear) should be clean, available each day, and put on before work.

Other protection: Wash thoroughly immediately after exposure to Methyl Bromide and at the end of the work shift. Workers whose clothing has been contaminated by Methyl Bromide should change into clean clothing promptly. Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to Methyl Bromide. Eye wash fountains should be provided in the immediate work area for emergency use. Do not eat, smoke, or drink where Methyl Bromide is handled, processed or stored, since the chemical can be swallowed. Wash hands carefully before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance: Colourless, liquefied gas or volatile liquid

Explosive properties: None

Odour: N/A

Oxidizing properties: None

pH: N/A

Vapour pressure : 1.9 atm

Boiling point: 3, 5 to 5°C

Density: N/A

Melting point: N/A

Solubility – water: Minimal

Flash point:

Solubility – solvent: Very soluble

Flammability: Flammable Gas, but only in presence of a high energy ignition source

Solubility – coefficient: N/A

Autoflammability: 537°C

10. STABILITY AND REACTIVITY

Conditions to avoid: Sources of ignition such as smoking and open flames.

Incompatible materials: Oxidizing agents (such as perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine and fluorine), metals (such as magnesium) dimethyl sulfoxide and ethylene oxide. Methyl Bromide attacks aluminum to form aluminum trimethyl.

Hazardous decomposition products: None

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Can irritate and burn the eyes and skin on contact, and can cause skin blisters.

Over exposure can cause headache, change in vision, nausea and weakness, numbness, loss of balance, tremor (shaking), dizziness, confusion, personality changes, and convulsions (seizures and fits). Very high levels can cause rapid loss of consciousness and death.

Breathing Methyl Bromide can irritate the lungs causing coughing and/or shortness of breath. Higher exposures can cause a build-up of fluid in the lungs (pulmonary edema) a medical emergency with severe shortness of breath.

Chronic toxicity: Methyl Bromide causes mutations (genetic changes). Such chemicals may have a cancer risk.

Carcinogenicity: Methyl Bromide causes mutations (genetic changes). Such chemicals may have a cancer risk.

Mutagenicity: Methyl Bromide is a mutagen. Mutagens may have a cancer risk. All contact with this chemical should be reduced to the lowest possible level.

Reproductive hazards: May damage the testes (male reproductive glands).

12. ECOLOGICAL INFORMATION

Aquatic toxicity – fish: Not harmful to aquatic life

Aquatic toxicity – daphnia: Not harmful to aquatic life

Aquatic toxicity – algae: Not harmful to aquatic life

Biodegradability: No data available

Bio-accumulation: No data available

Mobility: No data available

German wvk: N/A

13. DISPOSAL CONSIDERATIONS:

Disposal methods: Contain and dispose of Liquid Methyl Bromide as a Hazardous Waste.

Disposal packaging: N/A

14. TRANSPORT INFORMATION

UN no: 1062 (liquid) 1055 (gas)

IMDG – EMS No: N/A

ADR/RID Substance identity no: N/A

IMDG – MFAG table on: N/A

ADR/RID class: N/A

IATA – class: N/A

ADR/RID item no: N/A

IATA – subsidiary risk(s): N/A

ADR/RID hazard identity no: N/A

UK – description: No data available

IMDG – shipping name: N/A

UK emergency action class: No data available

IMDG – class: N/A

UK classification: No data available

Tremcard No: N/A

IMDG – marine pollutant: N/A

15. REGULATORY INFORMATION:

EEC hazard classification:

Risk phrases: N/A

Safety phrases: N/A

National Legislation: OSH Act, National Road Traffic Act (when promulgated)

16. OTHER INFORMATION:

SELECTED BIBLIOGRAPHY

1. Data sheets as supplied by various Suppliers and Manufacturers
2. Emergency Response Handbook – Annex A of SABS 0232-3
3. Handling Chemicals Safety, 2nd. Ed. Dutch Association of Safety Experts, Dutch Chemical Industry Association, Dutch Safety Institute, 1980
4. NIOSH Pocket Guide to Chemical Hazards, NIOSH, June 1990
5. Micromedex, Inc. TOMES CPS TM System Vol. 39
6. Patty's Industrial Hygiene Toxicology, 4th ed. Vol. 11 Part A, George D Clayton, Florence E Clayton
7. Supplement to NIOSH Manual of Analytical Methods, 3rd ed., NIOSH Publication No 84-100, 1985
8. Toxic & Hazardous Industrial Safety Manual – Industrial Chemicals Safety Manual for Handling and disposal with toxicity and hazard data
9. WinSpirs 2.1 as supplied by the Canadian Centre for Occupational Health and Safety.

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