**UNIVERSAL METHYL BROMIDE GA**

**1. IDENTIFICATION OF THE SUBSTANCE**

**Product Name:** METHYL BROMIDE GA  
**Insecticide**

**UN Number:** 1581

**Supplier:** Universal Crop Protection (Pty) Ltd.  
PO Box 801  
Kempton Park, 1620, South Africa

**Telephone:** (011) 396 2233  
**Fax:** (011) 396 4777

**Website:** www.villacrop.co.za

**Emergency telephone:** (011) 396 2233  
083 326 9272

**24 Hr Emergency Numbers:**  
Bateleur Trauma: 0860 333 911  
(Client: Villa Crop Protection)  
Red Cross Poison Information Centre: 021 689 5227  
Tygerberg Poison Information Centre: 021 931 6127

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

**Common Name:** Methyl Bromide  
**Chemical Name:** Bromomethane (IUPAC)

**CAS No.:** 74-83-9

**Chemical Formula:** CH₃Br (Mol. wt.: 94.9)

**Use:** Multi-purpose fumigant used for insecticidal, acaricidal and rodenticidal control in mills, warehouses, grain elevators and ships; soil fumigation for control of insects, nematodes, soil-borne diseases and weed seeds; and glasshouse and mushroom-house fumigation.

**Formulation:** methyl bromide: 980 g/kg  
chloropicrin: 20 g/kg (tear gas)

**Gas**

**Hazardous components:** Methyl bromide

Because methyl bromide lacks adequate physiologic warning properties, chloropicrin, a lacrimator, is added to prevent significant exposure.

**SYMBOLS:** T, N, Xi

**RISK-PHRASE(S):**

R : 23-36/37/38-50/53-59  

**3. HAZARD IDENTIFICATION**

**Toxicity class:** EPA II

**Likely routes of exposure:** Inhalation, absorption through skin and eyes.

**Odour is not adequate indicator of the presence of pure methyl bromide and does not provide reliable warning of hazardous concentrations.**

**Inhalation:** Breathing methyl bromide can cause injury to the brain and nerves, lungs and throat. High doses can also injure the kidneys and liver.

**Skin and Eye contact:** Contact with the skin and eyes can lead to irritation and severe burns. Methyl bromide gas can easily penetrate most protective clothing (e.g. cloth, rubber and leather) and skin. Prolonged retention in clothing and rubber boots may lead to chemical dermatitis and severe burns. Skin absorption may contribute to systemic toxicity.

**4. FIRST AID MEASURES AND PRECAUTIONS**

The main route of entry is via inhalation. Although skin absorption is not important route for methyl bromide intoxication, the skin is affected by contact with this chemical.

**Symptoms:** Symptoms of Methyl Bromide overexposure include: dizziness, blurred vision, lassitude, fatigue, staggering gait, slurred speech, nausea, vomit, convulsions and eyes and skin burns. Breathing Methyl Bromide can cause injury to the brain and nerves, lungs and throat. High doses can also injure the kidneys and liver.  
After a single, small exposure with prompt recovery, no delayed or long-term effects are likely to occur. After a serious exposure that causes coma or convulsions, permanent brain or nerve damage may result. Continued contact with the skin can cause death. Ingestion of methyl bromide may cause hand tremors and convulsions. Death may occur within 1 to 30 hours, usually from respiratory failure.

**Symptoms of Chloropicrin overexposure include:** severe irritation, tearing pulmonary oedema, vomit, weakness, irregular heartbeat, asthmatic attack.

**First aid:**

**Inhalation:** Remove from exposure area to fresh air immediately. If breathing has stopped, give mechanical artificial respiration (not direct mouth-to-mouth). Maintain airway and blood pressure and administer oxygen if available. Keep affected person warm and at rest. Treat symptomatically and supportively. Administration of oxygen should be performed by qualified personnel. Get medical attention immediately.
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Skin contact:
Remove contaminated clothing and shoes immediately. Wash affected area with a non-abrasive soap and water. Get medical attention immediately.

Eye contact:
Flush eyes with water or saline solution for at least 15 minutes. If symptoms of poisoning occur, treat respiratory difficulty with mechanical artificial respiration and oxygen. Get medical attention immediately. Oxygen should be administered by qualified medical personnel.

Ingestion:
Treat patients symptomatically and supportively. Get medical advice immediately. If vomiting occurs, keep head lower than the hips to prevent aspiration. See inhalation treatment

Antidote:
No antidote available, but the effects can be treated. Treat patients symptomatically and supportively. Get medical advice immediately.

Precautions:
See handling and storing - Section 7

5. FIRE FIGHTING MEASURES

Fire and explosion hazard:
Slight fire hazard when exposed to heat or flame.

Extinguishing agents:
Dry chemical, carbon dioxide, halon, water spray or standard foam.

Fire fighting:
Move containers from fire area if possible. Fight fire from a maximum distance. Dake fire control water for later disposal. Avoid breathing poisonous vapours and keep wind up.

Personal protective equipment:
Fire-fighters must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance. A self-contained breathing apparatus with full face piece operated in pressure-demand or other positive pressure mode is necessary.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:
Wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance. A self-contained breathing apparatus with full face piece operated in pressure-demand or other positive pressure mode is necessary.

Do not touch spilled material. For personal protection see Section 8.

Environmental precautions:
Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations. Isolate hazard area and deny entry. Keep unnecessary people away. Ventilate closed spaces before entering.

Occupational spill:
Do not touch spilled material; stop leak if you can do it without risk. Use water spray to reduce vapours. Keep out unprotected persons and animals. For small spills: sweep up with damp earth or sand or other suitable non-combustible absorbent materials and taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away and upwind. Large spills: Should be covered to prevent dispersal. Vacuum or shovel wasted into an approved drum.

7. HANDLING AND STORAGE REQUIREMENTS

Product can be extremely phytotoxic.

Handling:
Avoid inhalation and contact with eyes and skin. Use with adequate ventilation. Do not handle broken packages without protective equipment. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Seek medical advice.

Storage:
Store in its original container in dry, cool, well-ventilated area. Avoid excess heat. Not to be stored next to foodstuffs and water supplies. Store away from incompatible substances. Keep out of reach of children and animal. Do not contaminate other pesticides and fertilizers.

Storage and Handling of Cylinders:
Methyl bromide cylinders are under pressure. Containers should not be used and stored neat heat or any open flame. Cylinders may be stored either outdoors under ambient condition (protect from the sun) or indoors in a well-ventilated area. Store cylinders upright, secured to prevent tipping. The storage area should be protected to prevent entry by unauthorised persons. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging or rolling. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder
8. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. Provide local exhaust or process enclosure ventilation to meet exposure limits. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:
Respirator:
At any detectable concentration, fire fighting or any immediate dangerous situation a self-contained breathing apparatus with full face piece operated in pressure-demand or other positive pressure mode is necessary. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:
Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.

Gloves:
Employee must wear appropriate chemical resistant protective gloves to prevent contact with the substance.

Eye protection:
Employee must wear splash-proof or dust-resistant safety goggles and a face shield to prevent contact with the substance.

Emergency wash Facilities:
Where there is any possibility that an employee’s eyes or skin may be exposed to this substance, the employer should provide an eye wash fountain and appropriate quick drench shower within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Colourless; gas at room temperature and liquid at below 3.6 °C.

Odour:
Sweet, fruity odour at high concentrations due to chloropicrin.

Explosive properties:
Upper explosive limit: 16 % concentration in air.
Lower explosive limit: 10 % concentration in air.

Corrosiveness:
Generally non-corrosive under dry conditions.

10. STABILITY AND REACTIVITY

Stability:
Stable under normal temperatures and pressures.

Incompatibility:
Use of liquid methyl bromide with Aluminium, Magnesium, Zinc and alkali metals may result in the liberation of toxic gasses, and possible fire and explosion.
Use with Dimethyl sulfoxide may result delayed explosion hazard, with Strong oxidizers and Ethyl oxide vigorous reaction may occur.
It attacks Aluminium to form aluminium trimethyl, which is spontaneously flammable.

Thermal decomposition:
Thermal decomposition products may include the release of corrosive Hydrogen Bromide and Bromine fumes.

Polymerisation:
Hazardous polymerisation has not been reported to occur under normal temperatures and pressures.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:
214 mg/kg in rats.

Acute dermal LD₅₀:
135 mg/l per 2 hours in mouse.

Acute inhalation LC₅₀:
302 ppm per 8 hours in rats.
1546 mg/l per 2 hours in mouse.
28900 mg/l per 30 minutes in rabbits.
300 ppm per 9 hours in Guinea pigs.
Acute skin irritation:
No data available

Acute eye irritation:
No data available

Dermal sensitisation:
No data available

Carcinogenicity:
Not carcinogenic.

Neurotoxicity and Genotoxicity
Methyl Bromide may cause neurotoxic and genotoxic effects.

Mutagenicity:
Methyl Bromide is not mutagenic.

12. ECOLOGICAL INFORMATION

Degradability:
Only a small amount of methyl bromide is transformed into bromide ion while much of the gas enters the atmosphere. Transformation of methyl bromide into bromide increases as the amount of organic matter in the soil increases. The rate of degradation in fumigated soil is 6 to 14 % per day at 20 °C

Mobility:
More leaching occurs in a sandy versus a loamy soil. Methyl bromide run-off from field into surface waters is rare due to the way this chemical is normally applied.

Accumulation:
The half-life in surface water has been calculated to be 6.6 hours at 11 °C. Another study showed a half-life in water to be 20 days at 25 °C in a neutral solution. Methyl bromide quickly evaporates at temperatures ordinarily encountered in fumigating

ECOTOXICOLOGY:

Birds:
Oral LD50: bobwhite quail: 73 mg/kg

Fish:
Moderately toxic to aquatic organisms

Daphnia:
EC50 (48 h): Daphnia magna: 2.6 mg/l.

Bees:
Non-toxic to bees if used as directed.

Earthworms:
No information currently available.

13. DISPOSAL CONSIDERATION

Pesticide disposal:
The product is a very volatile liquid and quickly evaporates into the air. Contaminated absorbents, surplus product, etc., should be burned in a high-temperature incinerator (>1000 °C) with effluent gas scrubbing. Two conversion methods (applicable to methyl chloride) for transforming unwanted pesticides into useful chemicals are chlorolysis and catalytic hydrodechlorination. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

Package product wastes:
Emptied containers retain vapour and product residues. Close the valve, screw the safety cap onto the valve outlet and replace the protective bonnet (if applicable) before returning the empty cylinders to the distributor or supplier. Observe all labelled safeguards. Comply with any local legislation applying to disposal. Do not use methyl bromide cylinders for any other purpose.

14. TRANSPORT INFORMATION

UN NUMBER: 1581
ADR: Substance ID NR: 1581
Hazard ID NR: 26
Label: 6.1
AIR/IATA: Forbidden
IMG/IMO: Packaging group:
Label of class: 2(2.3)
Subsidiary Risk: Flammable gas
Shipping Name: Methyl Bromide

15. REGULATORY INFORMATION

Symbol: T, Xi, N

Indication of danger: Very toxic, Irritant, Dangerous for the environment.

R 23 Toxic by inhalation.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R 59 Dangerous to the ozone layer

S 1/2 Keep out of the reach of children.
S 15 Keep away from heat.
S27 Take off immediately all contaminated clothing.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 38 In case of insufficient ventilation wear suitable respiratory equipment.
S 45 In case of accident or if you feel unwell, seek medical advise immediately (show the label where possible).

S 59 Refer to the manufacturer/supplier for information on recovery/recycling.

S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

16. PACKING AND LABELLING

Packed in 100 kg steel cylinders and labelled according to South African regulations and guidelines. Cylinders are under pressure.

17. OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

18. REFERENCES

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.
- Pestline; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.

END OF DOCUMENT

Compiled: August 1998
Reviewed: December 2007