



Infosafe No™ NU01R	Issue Date : July 2010	ISSUED by NUFARM
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Product Name **METHYL BROMIDE 980 Fumigant**

Classified as hazardous

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name METHYL BROMIDE 980 Fumigant
Product Code 7015
Product Type Group 8A Insecticide
Company Name NUFARM AUSTRALIA LIMITED. (ABN 80 004 377 780)
Address 103-105 Pipe Road Laverton North
 Victoria 3026 Australia
Emergency Tel. 1800 033 498 (24hr Australia)
Telephone/Fax Number Tel: +61 3 9282-1000
 Fax: +61 3 9282-1001
Recommended Use For use by professional and registered fumigators for control of soil-borne pests and diseases as specified in the Directions for Use table on the label.
Other Information

2. HAZARDS IDENTIFICATION

Hazard Classification Classified as hazardous
 HAZARDOUS SUBSTANCE.
 DANGEROUS GOODS.
 Hazard classification according to the criteria of NOHSC.
 Dangerous goods classification according to the Australia Dangerous Goods Code.

Risk Phrase(s) Classified as hazardous
 R23/25 Toxic by inhalation and if swallowed.
 R36/37/38 Irritating to eyes, respiratory system and skin.
 R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
 R50 Very toxic to aquatic organisms.
 R59 Dangerous for the ozone layer.
 R68(M3) Possible risk of irreversible effects.

Safety Phrase(s) S1/2 Keep locked up and out of reach of children.
 S13 Keep away from food, drink and animal feeding stuffs.
 S15 Keep away from heat.
 S27 Take off immediately all contaminated clothing.
 S36/39 Wear suitable protective clothing and eye/face protection.
 S38 If insufficient ventilation, wear suitable respiratory equipment.
 S45 In case of accident or if you feel unwell seek medical advice immediately

Human Health Effects Methyl Bromide may be fatal if inhaled and harmful if swallowed or absorbed through the skin. It is a neurotoxin and a severe irritant to the upper and lower respiratory tract, skin and eyes.
 This product contains 2% chloropicrin (trichloronitromethane), which is used as a lachrymatory warning agent, and at this level does not affect the properties of the product, except for its odour.

Other Information Poisons Schedule S7 DANGEROUS POISON
 Acute poisoning from methyl bromide is characterised by marked irritation to the respiratory tract which may lead, in severe cases, to pulmonary oedema.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization	Gas		
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>
	Methyl bromide	74-83-9	980 g/kg
	Chloropicrin	76-06-2	20 g/kg

4. FIRST AID MEASURES

Inhalation Remove person to fresh air. Keep patient quiet and warm. Apply artificial respiration if necessary, and get medical attention immediately.

Ingestion If swallowed, wash mouth thoroughly with plenty of water and give water or milk to drink. Get medical attention immediately. NOTE: Do not give liquids to an unconscious person.

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Skin	Remove contaminated clothing and place in closed containers. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Seek medical advice immediately. All leather items should be discarded; other contaminated clothing must be discarded or thoroughly ventilated and washed before re-use.
Eye	If in eyes, hold the eyelids apart, flush at once with copious flowing water for at least 15 minutes. Seek medical attention immediately.
First Aid Facilities	If poisoning occurs, contact a doctor or the Poisons Information Centre (Australia) on 13 11 26.
Advice to Doctor	Treat symptomatically. Intense vesicant. Signs and symptoms of toxicity are primarily referable to the CNS, respiratory tract and the cardiovascular system. No specific antidote. Give artificial respiration if necessary but oxygen or stimulants only under qualified supervision. Human systemic effects by inhalation: anorexia, nausea or vomiting. A powerful fumigant gas which is one of the most toxic of the common organic halides. It is nematotoxic and narcotic with delayed action, it is cumulative and damaging to nervous system, kidneys, lungs. Delayed effects can include pulmonary oedema.
First Aid	A 24-HOUR MEDICAL SURVEILLANCE PERIOD IS MANDATORY IN ALL CASES OF EXPOSURE TO METHYL BROMIDE, EVEN IN THE ABSENCE OF ANY IMMEDIATE SIGNS OF POISONING.

5. FIRE FIGHTING MEASURES

Specific Hazards	Although the product is considered practically non flammable, it can be ignited with a high energy source of ignition. Containers may rupture violently if exposed to fire or excessive heat for sufficient time. In confined spaces such as buildings or sewers, there is a danger of vapour accumulation, which may result in explosion in the presence of an ignition source. If product involved in a fire, stop methyl bromide flow immediately. Do not extinguish burning gas unless flow can be shut off immediately. Use water spray, fog nozzle or CO2 to keep cylinder cool. If there is no risk, move cylinder away from fire. Use self-contained breathing apparatus with a full face-piece operating in positive pressure mode, and appropriate protective clothing. Extinguishing media: Water spray or fog, dry chemical foam and carbon dioxide.
Hazchem Code	2 X E
Decomposition Temp.	Decomposes from ca. 400°C When heated to decomposition, may release poisonous and corrosive fumes of CO and HBr.
Other Information	Hazchem code 2 X E .

6. ACCIDENTAL RELEASE MEASURES

Spills & Disposal	Evacuate area and keep personnel upwind. Use self-contained breathing apparatus in positive-pressure mode. If practicable, stop flow of vapour. Shut off all sources of ignition. Ventilate and/or allow to evaporate, keeping people away from area until safe re-entry levels are shown by an appropriate measuring device.
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7. HANDLING AND STORAGE

Precautions for Safe Handling	WARNING: Chloropicrin is corrosive to metals and care should be taken to protect metal surfaces and equipment during treatment. Methyl Bromide gas is colourless, odourless and highly dangerous. Extreme caution is required when handling.
Conditions for Safe Storage	Store in a well ventilated place. Do not store for prolonged periods in direct sunlight. The above statement is mandated by the APVMA, and is required to appear on almost all labels of agricultural chemicals. The original manufacturer recommends that methyl bromide cylinders not be stored in enclosed spaces. Storage in open spaces is strongly recommended. The original manufacturer does not warn against storage in direct sunlight. DO NOT drop, bump or drag cylinders. Do NOT dent cans.



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DO NOT unload by rope-sling, hooks or tongs.
 Keep cylinders upright in tamper-proof airy stores, away from dwellings and food and feed stuffs.
 Test periodically for leaks by halide leak detector.
 DO NOT spill or splash; avoid contact with the liquid or gas.
 Put out all pilot lights and glowing heating units.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards NOHSC has set the following exposure standard for methyl bromide : TLV (TWA) 5 ppm 19 mg/m³, STEL -. SK
 'SK' notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

Other threshold limit values:

	Methyl bromide:	Chloropicrin:
USA		
OSHA	STEL:C 20ppm (C 80mg/m ³), skin	TWA 0.1ppm (0.7mg/m ³)
ACGIH	TWA: 1ppm (3.9mg/m ³), skin	TWA 0.1ppm (0.67mg/m ³)
UK	TWA: 5ppm (20mg/m ³)	TWA 0.1ppm (0.68mg/m ³)
	STEL: 15ppm (59mg/m ³), 10 min	STEL 0.3ppm (2.1mg/m ³)

Engineering Controls Ventilation must be sufficient to maintain methyl bromide level below the TLV. Mechanical ventilation is recommended. Use local exhaust at source of vapour.

Hand Protection There are two approaches for hand protection. The manufacturer and Nufarm advocate the following:-
 DO NOT WEAR GLOVES when working with Methyl Bromide because of the danger that liquid or concentrated vapour may be trapped inside them. DO NOT wear rings or watches, especially watches with a leather band.

Personal Protective Equipment The APVMA mandates the following instruction for the label, including hand protection:-
 Very dangerous. Product can kill if inhaled. Poisonous if absorbed by skin contact. Repeated minor exposure may have a cumulative poisoning effect. Attacks eyes, nose, throat and skin. The fumes first cause smarting, then watering of the eyes. This should be taken as a warning sign. The liquid can cause burns. Avoid contact with eyes and skin. DO NOT inhale the vapour. Protect eyes while using.

When opening the container and using the product wear chemical resistant clothing buttoned to the neck and wrist, washable hat and elbow length butyl rubber gloves full face piece respirator with cannister specified for methyl bromide or a supplied air respirator. Detailed instructions for safe use appear in state regulations. If clothing becomes contaminated with product, remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash it immediately with water. Thoroughly ventilate treated areas before re-occupying. Avoid re-entry for 7 days after use in glass houses or other confined spaces. If re-entering, wear all protective clothing including respirator. After use, and before eating, drinking or smoking wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves and respirator and contaminated clothing. If respirator is rubber, wash with detergent and warm water. Do not re-use footwear until thoroughly aired.

General Fumigation: Wear full-face respirator (with Methyl Bromide 'O' canister) complying with AS1716 when releasing gas and when opening up structures for aeration. Use a halide detector for locating gas leaks from cylinders and outside structures. Use detection tubes or other monitoring devices inside structures. DO NOT enter fumigation areas until methyl bromide free as indicated by measuring devices. If however treated area must be entered, a self-contained breathing suit or apparatus conforming to AS1715 and AS1716 MUST BE WORN.

The above canister masks are suitable for low levels of methyl bromide. If high levels of methyl bromide gas are expected, it is advisable to wear self contained breathing apparatus with a mask in positive pressure mode.
 Warning: Chloropicrin is corrosive to metals and care should be taken to protect metal surfaces and equipment during treatment. Methyl Bromide gas is colourless, odourless and highly dangerous. Extreme caution is required when handling.

Body Protection No specially designed protective clothing is available.

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Do not wear gloves, impervious boots, finger rings or adhesive bandages on hands when handling this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Gas
Appearance	Colourless gas, with a sharp, penetrating odour.
Decomposition Temperature	Clear, colourless to straw-coloured liquid under pressure or below ca. 3.5°C. Decomposes from ca. 400°C
Boiling Point	When heated to decomposition, may release poisonous and corrosive fumes of CO and HBr. 3.5 - 4°C
Solubility in Organic Solvents	Infinitely soluble in most organic solvents
Specific Gravity	1.73 (liquid)
Vapour Pressure	1420mm Hg at 20°C
Vapour Density (Air=1)	3.3 at 20°C
Evaporation Rate	>1
Octanol/Water Partition Coefficient	Log 10 Kow - ca. 1.92
Flash Point	None
Flammability	Non flammable, can be ignited with a high energy source.
Auto-Ignition Temperature	537°C
Flammable Limits - Lower	Lower 10 (vol); Upper 16 (vol)
Molecular Weight	94.94

10. STABILITY AND REACTIVITY

Chemical Stability	Stable in sealed containers and under normal conditions.
Conditions to Avoid	Ignition sources, water contamination and heating above 400°C.
Hazardous Decomposition Products	Hydrogen bromide and carbon monoxide.
Hazardous Reactions	Incompatibility: Strong oxidizers, aluminium and magnesium metals and their alloys, natural rubber and certain types of plastic.
Hazardous Polymerization	Hazardous polymerisation is not possible.

11. TOXICOLOGICAL INFORMATION

Inhalation	Acute poisoning from methyl bromide is characterized by marked irritation to the respiratory tract which may lead, in severe cases, to pulmonary oedema. High concentrations may damage the liver, kidneys and central nervous system. Symptoms of poisoning include headache, dizziness, somnolence, vertigo, blurred vision, slurred speech, nausea and vomiting and possibly convulsions and coma.
Ingestion	ONSET OF TOXIC SYMPTOMS MAY BE DELAYED FROM 30 MINUTES TO SEVERAL DAYS. Severe irritant to mucous membranes and extremely toxic poison if ingested, although ingestion is highly unlikely.
Skin	Liquid splashed on clothing or leather and/or high gas concentrations held in contact with skin, may cause skin burns with large blisters appearing after several hours. Less severe exposure may cause itching skin rash after several days. May be absorbed through the skin in sufficient quantities to cause systemic toxicity.
Eye	Severe irritant. Contact of liquid or high concentrations of gas with the eyes may cause severe but usually reversible injury involving temporary blindness.

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Chronic Effects	Chronic exposure to low concentrations of methyl bromide may produce central nervous system effects. Signs include: mental confusion, lethargy, inability to focus one's eyes, inco-ordination and muscle weakness. Repeated skin exposure may cause contact dermatitis.
Mutagenicity	Mutagenic by the Ames Test. Methyl bromide induced DNA damage in rat testes is following inhalation exposure at 250ppm (6 hours/day for 5 consecutive days). In vivo, methyl bromide induced sister chromatid exchanges in bone marrow cells and micronuclei in peripheral erythrocytes of female mice exposed by inhalation for 14 days.
Carcinogenicity	Studies conducted with Methyl bromide, exposing animals both by inhalation (rats and mice) and by oral route (fumigated feed, rats), showed that there was no evidence of carcinogenic activity. Not included in NTP 9th Report on Carcinogens.
Acute Toxicity - Oral	LD50 (rat) 104 mg/kg for liquid MBr in corn oil LD50 (rat) 133 mg/kg for microencapsulated MBr in corn oil
Acute Toxicity - Inhalation	LC50 (inhalation, mouse) - 1540mg/m ³ /2hr LC50 (inhalation, rat) - 1175mg/m ³ /8hr
Other Information	The Australian Acceptable Daily Intake (ADI) for methyl bromide for a human is 0.0004 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 0.4 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Comm. Dept. of Health and Ageing Office of Chemical Safety, 'ADI List', December 2008). Single exposure vapour inhalation neurotoxicity study in rats: NOEL 100ppm Acute oral toxicity (single dose) study in Beagle dogs: Lethal dose 500mg/kg; No clinical signs were observed at 1 mg/kg.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Methyl bromide is listed in the Montreal Protocol as a controlled substance with an ODP (Ozone Depleting Potential) of 0.6.
Environ. Protection	DO NOT fumigate more than once as commodity is likely to become unfit for use. DO NOT treat within 50cm of desirable vegetation. Do NOT apply to areas adjacent to valuable crops. Signs as below must be prominently shown in all approaches to fumigation site. 'DANGER - POISON GAS - KEEP AWAY' Station a guard at the treatment site to prevent entry of unauthorised persons, children and animals, during treatment and aeration period. After fumigation, aerate structures well, until an appropriate measuring device indicates fumigation area free of methyl bromide.
Acute Toxicity - Fish	LC50 (96hr) for rainbow trout is 3.9 mg/l. LC50 (96hr) for zebrafish is 56 mg/l.
Acute Toxicity - Daphnia	EC50 (48 hrs): 2.6 mg/l
Acute Toxicity - Algae	EC50 (72 hrs) for selenastrum capricornutum 5 mg/l.
Acute Toxicity - Other Organisms	LD50 for northern bobwhite is ca. 73 mg/kg

13. DISPOSAL CONSIDERATIONS

Waste Disposal	Observe all federal, state or local environmental regulations when disposing of this material. The recommended method of waste disposal is incineration. If a suitable designated combustion chamber is not available, return MARKED containers to supplier.
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14. TRANSPORT INFORMATION

U.N. Number	1062
Proper Shipping Name	METHYL BROMIDE
DG Class	2.3
Sub.Risk	-



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Hazchem Code	2 X E
Packaging Method	3.8.2RT2
Packing Group	N/A
Storage and Transport	Considered dangerous for transport by the Australian Code for the Transport of Dangerous Goods by Road and Rail.
EPG Number	2B1
IERG Number	07
UN Number (Air Transport, ICAO)	Cargo Aircraft - Forbidden Passenger Aircraft - Forbidden

15. REGULATORY INFORMATION

Poisons Schedule	S7
Packaging & Labelling	DANGEROUS POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING
Hazard Category	Toxic, Irritant, Dangerous for the environment
AICS (Australia)	All of the components in this product are listed on the Australian Inventory of Chemical Substances.

16. OTHER INFORMATION

Date of preparation or last revision of MSDS	revised 05/07/2010
Contact Person/Point	Normal Hours: Mrs Kathleen Marsh Phone: +61 3 9282 1000 After Hours: Shift Supervisor Phone: 1800 033 498
Revisions Highlighted	The MSDS was reviewed. Minor changes were made to the information. See section 8 - Hand Protection and Personal Protective Equipment. ...End Of MSDS...

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