

MATERIAL SAFETY DATA SHEET

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Date of Issue: October 2012
MSDS No. FMC/METH225/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC Methomyl 225 Insecticide

Other Names: Methomyl, Group 1A Herbicide, Carbamate insecticide.
Use: Agricultural insecticide for control of various insects in various crops.
Company: FMC Crop Protection Pty Ltd.
Address: Unit 26, 8 Metroplex Avenue, Murarrie, Qld 4172
Telephone Number: 07 3908 9222 **Fax Number:** 07 3908 9221
Emergency Telephone Number: 1800 033 111 (All hours - Australia wide).

SECTION 2 HAZARDS IDENTIFICATION

**Classified as Hazardous according to criteria of the Safe Work Australia.
Classified as a Dangerous Good according to the ADG Code.**

Risk phrases: R11 Highly flammable.
R23/24 Toxic by inhalation and in contact with skin.
R28 Very toxic if swallowed.

Safety Phrases: S1/2 Keep locked up and out of reach of children.
S16 Keep away from sources of ignition – No smoking.
S24 Avoid contact with skin.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, seek medical advice immediately.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	CAS NUMBER	PROPORTION
Methomyl	16752-77-5	225 g/L
Methanol	67-56-1	472 g/L
Other ingredients determined to be non-hazardous (including water)		10 - 30%

SECTION 4 FIRST AID MEASURES

Swallowed: Rinse mouth thoroughly with water. Seek medical advice immediately. If product has been swallowed and symptoms are evident and medical assistance is not immediately available, give one atropine tablet (0.6 mg) every five minutes until dryness of the mouth occurs. Preferably, carry out treatment under the direction of medical advice obtained by phone.

Eye: If in eyes, hold eyelids open and wash with copious amounts of water for at least 15 minutes. Seek medical advice immediately.

Skin: Wash affected areas thoroughly with soap and water. Remove contaminated clothing and launder before re-use. All leather items should be discarded. Seek medical advice, but only after the exposed skin has been thoroughly washed.

Inhaled: Remove patient to fresh air, and, if required, give one atropine tablet every five minutes until dryness of the mouth occurs. Obtain medical assistance. See 'swallowed' for further information.

SECTION 4 | FIRST AID MEASURES

Advice to Doctor: An anticholinesterase compound.

General Supportive treatment:-

Artificial respiration (via a tracheal tube) should be started at the first sign of respiratory failure and maintained for as long as necessary.

Atropine:-

Atropine should be given, beginning with 2 mg iv repeated at 15 to 30 minute intervals. The dose and the frequency of atropine treatment varies from case to case, but should maintain the patient fully atropinized (dilated pupils, dry mouth, skin flushing, etc.).

Oxime reactivations:-

Although it might be suspected that oxime cholinesterase reactivators would be as helpful in carbamate poisoning as they are in organophosphorous poisoning, this is not the case. There is experimental evidence that the pyridinim oxime 2-PAM is not effective in carbamate poisoning and there is some evidence that it makes poisoning by certain carbamates, including carbaryl, worse.

Diazepam:-

Diazepam should be included in the therapy of all but the mildest cases. Besides relieving anxiety it appears to counteract some aspects of CNS-derived symptoms that are not affected by atropine. Doses of 10 mg sc or iv are appropriate and may be repeated as required. Other centrally acting drugs and drugs that may depress respiration are not usually recommended in the absence of artificial respiration procedures.

SECTION 5 | FIRE FIGHTING MEASURES

Specific Hazard: Flammable liquid – flash point 21°C. Avoid strong water jets.

Extinguishing media: CO₂, Foam or dry chemical. Soft stream water fog or fine water spray if no alternatives. DO NOT use water jets. Contain all runoff.

Hazards from combustion products: There is a risk of containers exploding if involved in a fire. If involved in a fire, it will emit toxic oxides of carbon and nitrogen and possibly oxides of sulphur. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk to of exposure to vapour or smoke.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe or contact smoke, gases or vapours generated. If exposed to fire keep containers cool by spraying with water.

SECTION 6 | ACCIDENTAL RELEASE MEASURES

Emergency procedures: Isolate and post spill area. Wear prescribed protective clothing and equipment. Large spills should be dyked or covered to prevent dispersal. Contain spill and absorb with clay, sand, soil or proprietary absorbent (such as vermiculite). Vacuum, shovel or pump spilled material into an approved container and dispose of as listed below. Keep out unprotected persons and animals.

Material and methods for containment and cleanup procedures: To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

SECTION 7 | HANDLING AND STORAGE

Precautions for Safe Handling: Very dangerous, particularly the concentrate. Product and spray are poisonous if absorbed by skin contact, inhaled or swallowed. Attacks eyes and will irritate the nose, throat and skin. Repeated minor exposure may have a cumulative poisoning effect. Avoid contact with eyes, skin and clothing. Do not inhale vapour or spray mist. Protect eyes while using. Ensure containers are kept closed until using product. Avoid contact with eyes and skin. Do not inhale dust or spray mist.

SECTION 7 | HANDLING AND STORAGE (Continued)

When opening the container and preparing the spray wear elbow-length PVC gloves and face shield. When using the prepared spray, wear cotton overalls buttoned to the neck and wrist, washable hat, elbow-length PVC gloves, impervious footwear and half facepiece respirator with combined dust and gas cartridge (canister).

Conditions for Safe Storage: KEEP OUT OF REACH OF CHILDREN. This product is a Schedule 7 Poison (S7) and must be stored, transported and sold in accordance with the relevant Health Department regulations. This product is classified as a Dangerous Good – Flammable liquid. DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in the closed original container, in a locked, cool well ventilated area, out of direct sunlight. Store in a room or place away from children, animals, food, feed stuffs, seed and fertilizers. Not classified as a Dangerous Good. DO NOT repack or use container for any other purpose. No smoking, eating or drinking should be allowed where material is used or stored.

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION**National Exposure Standards:**

No exposure guidelines have been established for this product by Safe Work Australia, but exposure guidelines have been established for the active ingredient and solvent and are presented below:

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m ³)
Methomyl	2.5 mg/m ³	Not set
Methanol	262 mg/m ³ (200 ppm)	328 mg/kg (250 ppm)

TWA = Time-Weight Average. STEL = Short Term Exposure Limit.

Biological Limit Values:

No biological limit allocated.

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)**Engineering controls:**

Use in ventilated areas only. Use local exhaust at all process locations. Ventilate all transport vehicles prior to unloading. Keep containers closed when not in use.

Personal Protective equipment (PPE):

General: Very dangerous, particularly the concentrate. Product and spray are poisonous if absorbed by skin contact, inhaled or swallowed. Attacks eyes and will irritate the nose, throat and skin. Repeated minor exposure may have a cumulative poisoning effect. Avoid contact with eyes, skin and clothing. Do not inhale vapour or spray mist. Protect eyes while using. 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, face shield, respirator (if rubber, wash with detergent and warm water) and contaminated clothing.

When opening the container and preparing the spray wear elbow-length PVC gloves and face shield. When using the prepared spray, wear cotton overalls buttoned to the neck and wrist, washable hat, elbow-length PVC gloves, impervious footwear and half facepiece respirator with combined dust and gas cartridge (canister).

Respiratory Protection: Do not inhale vapour or spray mist. Wear half facepiece respirator with combined dust and gas cartridge (canister).

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each days use wash gloves and contaminated clothing.

SECTION 9 | PHYSICAL AND CHEMICAL PROPERTIES**Appearance:**

Blue liquid.

Odour:

Sulfur-like odour.

Solubility in Water:

Soluble. (Solubility of methomyl is 58 g/L @ 25°C).

SECTION 9 | PHYSICAL AND CHEMICAL PROPERTIES (Continued)

Specific Gravity:	0.90
Volatile Component:	~52%
Flash Point:	21°C
Flammability:	Highly flammable
Auto-Ignition Temperature:	470°C
Flammable Limits:	Lower ~ 6.7% by volume; Upper ~36.5% by volume.

SECTION 10 | STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight. Avoid all sources of ignition.

Incompatible materials: Keep concentrate away from strong alkalis and alkaline materials such as lime.

Hazardous decomposition products: If involved in a fire, it will emit toxic oxides of carbon and nitrogen and possibly oxides of sulphur.

Hazardous reactions: No special considerations. Hazardous polymerisation is not possible.

SECTION 11 | TOXICOLOGICAL INFORMATION**Toxicology**

Ingestion: Very Toxic. LD₅₀ (rat) 30 mg/kg for methomyl. The following symptoms, listed in approximate order of appearance, begin within 30 - 60 minutes and are at a maximum in 2 - 8 hours.

Mild – Anorexia, headache, dizziness, weakness, anxiety, sub-sternal discomfort, tremors of the tongue and eyelids, contraction of the pupil and impairment of visual acuity.

Moderate – Nausea, salivation, tearing, abdominal cramps, vomiting, sweating, slow pulse and muscular fasciculations.

Severe – Diarrhoea, pinpoint and non-reactive pupils, respiratory difficulty, pulmonary oedema, cyanosis, loss of sphincter control, convulsions, coma and heart block. Hyperglycaemia and possible acute pancreatitis have occurred.

Eye: Will irritate the eyes. May cause pupil constriction.

Skin: This product is a skin irritant. Prolonged contact of the concentrate with skin will result in absorption of some methomyl and methanol which can be harmful. Symptoms of over-exposure may be similar to those described for 'Ingestion'. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis. LD₅₀ (rabbit) > 2000 mg/kg for methomyl.

Inhalation: May cause irritation to mucous membranes and respiratory tract. Breathing vapour can result in headaches, dizziness and possible nausea. Breathing in high concentrations of vapour can produce central nervous system depression, which can lead to loss of coordination, impaired judgement and if exposure is prolonged, unconsciousness. Inhalation of sprays or mists may result in effects described under 'Ingestion'. LC₅₀ (rat) = 0.3 mg/L/4hr for methomyl aerosol.

Chronic Effects:

Regular exposure may result in lowering of cholinesterase activity which will recover within a few days after exposure ceases. Repeated or prolonged exposure to high doses of methanol alone may have serious irreversible effects such as blindness. This effect is not relevant with this product, as ingestion of significant quantities would result in death due to toxicity of methomyl.

The weight of evidence is that methomyl is not carcinogenic, mutagenic and does not have any reproductive effects.

SECTION 12 | ECOLOGICAL INFORMATION

Environmental Toxicology: Highly toxic to birds. LD₅₀ Bobwhite quail = 24 mg/kg. LD₅₀ hens 28 mg/kg. All deaths occurred within 10 minutes. LD₅₀ Japanese quail = 34 mg/kg. LD₅₀ Mallard duck & pheasants = 16 mg/kg. LD₅₀ starlings = 42 mg/kg. LD₅₀ Red Winged blackbirds = 10 mg/kg. Moderately to highly toxic to fish. LD₅₀ Rainbow trout = 3.4 mg/kg. LD₅₀ Bluegill sunfish = 0.9 mg/kg. LD₅₀ daphnia = 0.032 mg/kg. Highly toxic to aquatic invertebrates. Methomyl does not bio accumulate. Highly toxic to bees by contact and ingestion, LD₅₀ = 0.1 µg/bee.

Environmental Properties: *Breakdown in water:* Half-life in surface water is estimated at 6 days. Estimated half-life in ground water > 25 weeks. *Breakdown in Soil:* Low persistence in soil. Half-life in soil is approximately 14 days. Highly soluble in water so has a potential for groundwater contamination. *Breakdown in vegetation:* Residues are short lived with half-life of 3 to 5 days.

Do not spray on vegetation where honeybees are foraging. Do not contaminate dams, waterways or sewers with this product or the containers for this product.

SECTION 13 | DISPOSAL CONSIDERATIONS

Spills & Disposal: Isolate and post spill area. Wear prescribed protective clothing and equipment. Large spills should be dyked and covered to prevent dispersal. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

Disposal of empty containers: Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging for appropriate disposal at an approved waste management facility. If an approved waste management facility is not available bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product.

SECTION 14 | TRANSPORT INFORMATION

Road & Rail Transport: This product is classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail. UN 2758. Proper Shipping Name: CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S – flash point less than 23°C (contains Methomyl and Methanol). Packaging Group II. Class 3, Sub-Class 6.1. Hazchem ●3WE. Hazard Identification number 336.

This product is a Schedule 7 Poison (S7) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 15 | REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of the Safe Work Australia. (T - Toxic, T⁺ - Very Toxic).

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 7 poison.

This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 67823.

Product is classified as a Dangerous Good according to the ADG Code (7th Ed) and classified as a Dangerous Good for sea and air transport

Requirements concerning special training:

Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16 OTHER INFORMATION

Issue Date: 15 October 2012. Valid for 5 years. (First issue).

Key to abbreviations and acronyms used in this MSDS:

ADG Code: Australian Dangerous Goods Code (for the transport of Dangerous Goods by Road and Rail).

ASCC: Australian Safety & Compensation Council (formally known as the National Occupational Health & Safety Commission (NOHSC)).

Carcinogen: An agent which is responsible for the formation of a cancer.

Genotoxic: Capable of causing damage to genetic material, such as DNA.

Lacrimation: The production, secretion, and shedding of tears.

Lavage: A general term referring to cleaning or rinsing.

NOHSC: National Occupational Health and Safety Commission.

Pneumonitis: A general term that refers to inflammation of lung tissue.

PPE: Personal protective equipment.

Teratogen: An agent capable of causing abnormalities in a developing foetus.

TWA: The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.

Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. "Search Hazardous Substances". Safe Work Australia website. (2012).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Standard for the Uniform Scheduling of Medicines and Poisons. No. 3. Medicines and Poisons Scheduling Secretariat. June 2012.

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End of MSDS