

MATERIAL SAFETY DATA SHEET



Date of Issue: July 19, 2004

1. IDENTIFICATION OF MATERIAL AND SUPPLIER

Product name Marlin® Insecticide

Other names None

Product codes and pack sizes 4209604 (20 L)

Chemical group Carbamate

Recommended use Agricultural insecticide

Formulation Soluble concentrate (SL)

Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022

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Victoria 3123, Australia

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2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARDOUS SUBSTANCE (see Risk phrases below) - DANGEROUS GOOD
Very poisonous. Cholinesterase inhibitor. Flammable liquid. Dangerous to aquatic organisms and wildlife.

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)

Risk phrases R28 – Very toxic if swallowed
R23 – Toxic by inhalation

Safety phrases See Sections 4, 5, 6, 7, 8, 9, 13

ADG classification “Dangerous good” for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail – CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC (contains methanol, methomyl), Class 3 (6.1), UN 2758, Packing Group II, MARINE POLLUTANT.

SUSDP classification Schedule 7 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Methanol	[67-56-1]	593
Methomyl	[16752-77-5]	225
Other ingredients, including water	(non-hazardous)	82

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4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to the doctor.

Inhalation If inhaled, remove to fresh air and keep at rest. Obtain medical advice as above. If breathing stops or shows signs of failing, start artificial respiration. If advised by doctor or Poisons Information Centre, atropine tablets may be administered. For poisoning through lungs, one atropine tablet may be given every 5 minutes until dryness of the mouth occurs. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person. Get to a doctor or hospital quickly.

Skin contact Immediately remove contaminated clothing. Wash affected areas with soap and water. Seek immediate medical advice. If advised by doctor or Poisons Information Centre, atropine tablets may be administered. For poisoning by skin absorption, one atropine tablet may be given every 5 minutes until dryness of the mouth occurs. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person. Get to a doctor or hospital quickly.

Eye contact Immediately rinse eyes thoroughly, including under eyelids, with running water for at least 15 minutes. Seek medical attention immediately after washing.

Ingestion Wash out mouth with water. Keep patient at rest and seek medical advice immediately, as above. Transport patient to doctor or hospital quickly. If advised by doctor or Poisons Information Centre, atropine tablets may be administered, one atropine tablet every 5 minutes until dryness of the mouth occurs. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.

First Aid Facilities Provide eyewash and safety shower facilities in the workplace. Obtain an emergency supply of atropine tablets 0.6 mg.

Medical attention This product contains the carbamate insecticide, methomyl, which is a reversible cholinesterase inhibitor. Symptoms of poisoning include: nausea, vomiting, diarrhoea, weakness, dizziness, abdominal pain, involuntary shaking, chest discomfort, decreased pulse, blindness, excessive salivation, pinpoint pupils, blurred vision, headache, profuse sweating, temporary paralysis, respiratory depression, convulsions. In severe cases, symptoms of twitching, giddiness, confusion, muscle incoordination, slurred speech, low blood pressure, heart irregularities and loss of reflexes may also be experienced. Death can result from discontinued breathing, paralysis of muscles of the respiratory system, intense constriction of the openings of the lungs, or all three. Acute poisoning symptoms may be delayed and may last for several days. Atropine sulphate should be used for treatment. Administer repeated doses of 1.2 to 2.0 mg intravenously every 10 to 30 minutes until full atropinisation is achieved. Do not use morphine or 2-PAM. Maintain atropinisation until patient recovers. Artificial respiration or oxygen may be necessary. Toxic effects of methanol are cumulative and affect the central nervous system, especially the optic nerve. Due to the large amount of solvent in this product, it is important to avoid aspiration into lungs. Allow no further exposure to any cholinesterase inhibitors until recovery is assured.

5. FIRE FIGHTING MEASURES

Extinguishing media	Alcohol stable foam, dry chemical, carbon dioxide. Use water only if necessary - avoid as much as possible.
Hazards from combustion products	Thermal decomposition products may be hazardous, e.g. oxides of sulphur, nitrogen and carbon, hydrogen cyanide, carbon disulfide, methyl isocyanate.
Precautions for fire fighters	The product is a flammable liquid, flash point 12° C. It can be violently or even explosively reactive, as well as highly toxic. Methanol vapours are heavier than air, and can flash back. Firefighters should wear appropriate full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Evacuate immediate vicinity and request emergency services assistance. Use water spray to cool fire-exposed containers. Bund area with sand or earth to prevent contamination of drains or waterways. After fire fighting operations, remove contaminated clothing and shower thoroughly. Dispose of fire control water or other extinguishing agent and spillage safely later.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Extinguish or remove all possible sources of ignition. Do not smoke, eat or drink during the cleanup process. Personnel involved in cleanup should wear protective clothing and equipment as described in Section 8 - PERSONAL PROTECTION. Keep people and animals away and upwind. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled drums for safe disposal. Clean floor with a damp cloth and place cloth in drum. Cover and label drums for safe disposal. Thoroughly ventilate the area after cleanup. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority. Decontaminate tools and equipment used in the cleanup. Hydrated lime may be useful as a neutralising agent.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Very dangerous, particularly the concentrate. Product and spray are poisonous if absorbed by skin contact, inhaled or swallowed. Attacks the eyes. 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. If clothing becomes contaminated with product or wet with spray, remove clothing immediately. If product or spray on skin, immediately wash area with soap and water. 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 or face piece and contaminated clothing. Wash rubber respirator with detergent and warm water. Keep away from excessive heat, open flames and other sources of ignition. Take precautionary measures against static discharges.
Storage	KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAMES. Store in the closed, original container in a dry, cool, secure, well-ventilated area, above 0°C and below 46°C. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers.
Flammability	Highly flammable liquid. Flash point 12° C.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	<p>NOHSC exposure standards for <u>methanol (methyl alcohol)</u>: TWA 200 ppm, 262 mg/m³; STEL 250 ppm, 328 mg/m³ – Skin NOHSC exposure standards for <u>methomyl</u>: TWA 2.5 mg/m³ <u>Definitions:</u> <i>Exposure standard – Time Weighted Average (TWA)</i> means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week. <i>Exposure standard – Short term exposure limit (STEL)</i> means a 15 minute TWA exposure which should not be exceeded at any time during the working day. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL <i>Skin</i> – Absorption through the skin may be a significant source of exposure.</p>
Biological limit values	<p>It is recommended that production workers and agricultural workers handling this product are monitored for cholinesterase levels. A baseline level should be established prior to any potential exposure.</p>
Engineering controls	<p>Control process conditions to avoid contact. Use local or general exhaust ventilation to meet exposure standard requirements. These must be fitted with flame and explosion proof electrical fittings. Use only in well-ventilated areas.</p> <p><u>It is important to avoid inhalation, skin and eye contact with this product.</u></p>
Personal Protective Equipment	<ul style="list-style-type: none">• Wear face shield or goggles.• Wear an AS/NZS 1715/1716 approved half-face respirator with combined dust and gas canister.• Wear cotton overalls buttoned to the neck and wrist, a washable hat and rubber boots.• Wear elbow-length PVC or rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear blue liquid
Odour:	Sulphurous
pH:	Not available
Vapour pressure:	6.65 mPa at 25° C
Vapour density:	1.1 (air = 1)
Boiling point:	65° C (methanol)
Freezing/melting point:	Not available
Solubility:	Miscible with water
Specific Gravity:	0.900 at 20° C
Flash Point:	12.2° C (Closed cup)
Flammability (explosive) limits:	LEL: 6.7% v/v; UEL: 36% v/v (methanol)
Auto-ignition temperature:	385° C (methanol)
Partition coefficient (octanol/water):	<i>Methomyl</i> : Log P _{ow} = 0.093 at 20° C

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10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Highly flammable - avoid sources of ignition and heat. Heating can release vapours which can be ignited.
Incompatible materials	Incompatible with alkalis, oxidising agents, nitric acid and sulphuric acid.
Hazardous decomposition products	Thermal decomposition products may be hazardous, e.g. oxides of sulphur, nitrogen and carbon, hydrogen cyanide, carbon disulfide, methyl isocyanate.
Hazardous reactions	None

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	Product and spray are poisonous if inhaled. May cause sleepiness and other symptoms as described under "Ingestion". Will irritate the mucous membranes of the nose and throat.
Skin contact	Product and spray are poisonous if absorbed by skin contact. Irritating and drying to the skin. Absorption of methanol through the skin may occur with toxic effects.
Eye contact	Attacks the eyes. Contact with the eyes will cause irritation, pain, short-sightedness, blurred vision, weeping and other eye disturbances.
Ingestion	Very toxic if swallowed. This product contains methomyl which is a carbamate pesticide, and as such is a reversible cholinesterase inhibitor. Symptoms of poisoning include: nausea, vomiting, diarrhoea, weakness, dizziness, abdominal pain, involuntary shaking, chest discomfort, decreased pulse, blindness, excessive salivation, pinpoint pupils, blurred vision, headache, profuse sweating, temporary paralysis, respiratory depression, convulsions. In severe cases, symptoms of twitching, giddiness, confusion, muscle incoordination, slurred speech, low blood pressure, heart irregularities and loss of reflexes may also be experienced. Death can result from discontinued breathing, paralysis of muscles of the respiratory system, intense constriction of the openings of the lungs, or all three. Acute poisoning symptoms may be delayed and may last for several days.

ANIMAL TOXICITY DATA

<u>Acute:</u>	
Oral toxicity	LD ₅₀ rat: 94 mg/kg (<i>similar product</i>)
Dermal toxicity	LD ₅₀ rat: > 2000 mg/kg (<i>similar product</i>)
Inhalation toxicity	LD ₅₀ rat (4 hour): 0.758 mg/L air (<i>similar product</i>)
Skin irritation	Moderately irritating (rabbit) (<i>methanol</i>) Slightly irritating (rabbit) (<i>methomyl</i>)

12. TOXICOLOGICAL INFORMATION - continued

Irritation to mucous membranes Moderately Irritating (rabbit) (*methanol*)
 Slightly irritating (rabbit) (*methomyl*)

Sensitisation Not available

Chronic:

The main health effects from repeated exposure would be toxic symptoms of cholinesterase inhibition as described above. Repeated minor exposure may have a cumulative poisoning effect. Chronic exposure to methanol can lead to impaired vision and dermatitis with redness and scaling of the skin. Methomyl is non-mutagenic, non-carcinogenic and non-teratogenic.

12. ECOLOGICAL INFORMATION

Dangerous to bees. Dangerous to fish. Dangerous to birds, stock and wildlife. Birds feeding on treated areas may be killed. DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

Ecotoxicity

Methomyl:

Fish toxicity:

LC₅₀: 0.9 mg/L (96 h); bluegill sunfish

LC₅₀: 3.4 mg/L (96 h); rainbow trout (*Oncorhynchus mykiss*)

Aquatic invertebrate toxicity:

LC₅₀: 31.7 µg/L (48 h); water flea (*Daphnia magna*)

Algae toxicity:

EC₅₀: 60 mg/L (72 h); algae

Bird toxicity:

LD₅₀: 15.9 mg/kg; Mallard duck

LD₅₀: 15.4 mg/kg; pheasant

Eight-day dietary LC₅₀ for bobwhite quail 3,680 mg/kg diet.

Environmental fate, persistence, degradability, mobility Methomyl is rapidly degraded in soil.

13. DISPOSAL CONSIDERATIONS

When returnable container is empty or contents no longer required return it to the point of purchase. For non-returnable containers, triple or (preferably) pressure rinse them 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 bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Dispose of waste product via a reputable disposal contractor to an approved landfill. Do not discharge into drains or sewers.

14. TRANSPORT INFORMATION

UN number	2758
Proper shipping name	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC (contains methanol, methomyl)
Class and Subsidiary Risk	3 6.1
Packing Group	II
EPG	Guide 16 – Dangerous Goods - Initial Emergency Response Guide
Hazchem code	3WE
Marine Pollutant	Yes (IMDG Code – methomyl is a Class “P” Marine Pollutant)

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988
National Registration Authority approval number: 32032

See also Section 2.

16. OTHER INFORMATION

Trademark information Marlin® is a Registered Trademark of Bayer.

Preparation information Replaces August 1, 2002 MSDS.
Reasons for revision: 16 heading format, dangerous goods classification

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.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

END OF MSDS