

MATERIAL SAFETY DATA SHEET



Date of Issue: March 25, 2003

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product name Folimat® 800 Insecticide Spray
Other names None
Product code and pack sizes 260812 (5 L), 260804 (20 L)
Chemical group Organophosphorus
Recommended use Agricultural insecticide
Formulation Soluble concentrate
Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022
Address 391 - 393 Tooronga Road, East Hawthorn
Victoria 3123, Australia
Telephone (03) 9248 6888
Facsimile (03) 9248 6800
Website www.bayercropscience.com.au
Contact Development Manager (03) 9248 6888
Emergency Telephone Number 1800 033 111 – Orica SH&E Shared Services

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARDOUS SUBSTANCE (see Risk phrases below) - DANGEROUS GOOD
Very dangerous. Cholinesterase inhibitor. Flammable liquid.

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

Risk phrases R25 – Toxic if swallowed.
R21 – Harmful in contact with skin.
R36 – Irritating to eyes.
R43 – May cause sensitisation by skin contact.

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 – ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (contains omethoate, 1-methoxy-2-propyl acetate), Class 6.1, Sub class 3, Packing Group II, UN 3017.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration
Omethoate	[1113-02-6]	800 g/L
1-methoxy-2-propyl acetate	[108-65-6]	Approx. 30%

MATERIAL SAFETY DATA SHEET



Date of Issue: March 25, 2003

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 **urgent** medical advice. If breathing stops or shows signs of failing, start artificial respiration. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.
- Skin contact** Immediately remove contaminated clothing. Wash affected areas with soap and water. Seek **urgent** medical aid. Persons assisting the patient should protect themselves from contamination. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.
- Eye contact** Rinse eyes immediately with clean water for at least 15 minutes and obtain **urgent** medical aid.
- Ingestion** Wash out mouth with water. Keep patient at rest and seek **urgent** medical advice as above. **Transport patient to doctor or hospital quickly.** If advised by doctor or Poisons Information Centre, atropine tablets may be administered. 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** Folimat 800 contains omethoate which is an organophosphorus compound, and as such it is a cholinesterase inhibitor.
Symptoms of poisoning
Mild intoxication causes headache, blurred vision, weakness, sweating, mild chest pain, nausea and vomiting. Severe intoxication causes cyanosis (blueness of the skin, as from lack of oxygen), muscular twitching, spasms, miosis (pinpoint pupils) and respiratory paralysis. Onset of symptoms may be delayed. Cholinesterase inhibition sometimes persists for several weeks.
Treatment
Basic aid, decontamination, symptomatic treatment and if necessary administration of antidote. Antidote: Atropine sulphate. In severe cases pralidoxime may be administered as well, if given within 24 hours after exposure. Atropine should not be given to a cyanosed patient. Monitor respiratory, cardiac and central nervous system function. Monitor red blood cell and plasma cholinesterase levels. Administer oxygen if necessary. Watch for pulmonary oedema and delayed neurological symptoms.
Contraindications
Adrenergic derivatives. Never give patient morphine, theophylline or theophylline-ethylenediamine. Large amounts of intravenous fluids are generally contraindicated because of the threat of pulmonary oedema.

Production workers and agricultural workers handling this product should be monitored for cholinesterase levels. A baseline level should be established prior to any potential exposure.

5. FIRE FIGHTING MEASURES

Extinguishing media	Waterspray, foam, dry chemical, carbon dioxide, sand.
Hazards from combustion products	In a fire, hydrogen cyanide, carbon monoxide, phosphorus pentoxide, sulphur dioxide and nitrogen oxides may be formed.
Precautions for fire fighters	The product is a flammable liquid, flash point 45° C. Above this temperature explosive vapour/air mixtures may be formed. Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep unnecessary people away and move all other personnel to windward side of fire. Isolate hazard area and deny entry. Consider evacuation, taking all relevant factors into account. In case of doubt, evacuate immediate vicinity and request emergency services assistance. Use water spray to cool fire-exposed containers. Avoid spraying directly into containers due to danger of boilover. Bund area with sand or earth to prevent contamination of drains or waterways. 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 full body protective clothing and equipment as described in Section 8 - PERSONAL PROTECTION. Keep people and animals away and upwind. Consider evacuation and obtain assistance from emergency services if needed. 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. Seal 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, equipment and clothing used in the cleanup. Dispose of any heavily soiled clothing, placing it in disposal drum.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Very dangerous. Poisonous if absorbed by skin contact, inhaled or swallowed. Repeated exposure may cause allergic disorders. Repeated minor exposures may have a cumulative poisoning effect. Sensitive workers should use protective clothing. Avoid contact with eyes, skin and clothing. Do not inhale spray mist. If product 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 and contaminated clothing. Keep away from excessive heat, open flames and other sources of ignition. Take precautionary measures against static discharges.
Storage	Store in the closed, original container in a cool, dry, well-ventilated area. Do not store for prolonged periods in direct sunlight. Keep away from excessive heat, open flames and other sources of ignition. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers.
Flammability	Flammable liquid.

MATERIAL SAFETY DATA SHEET



Date of Issue: March 25, 2003

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	No exposure standards have been established by NOHSC for any of the ingredients in this product.
Engineering controls	Control process conditions to avoid contact. Use local exhaust ventilation during manufacture and spark proof equipment. The vapour of the solvent in this product may travel considerable distances to a source of ignition and flash back. Use this product in a well-ventilated area only.
Personal Protective Equipment	Product is very dangerous – poisonous if absorbed by skin contact, inhaled or swallowed. <ul style="list-style-type: none">• Wear face shield• Wear organic vapour respirator - AS/NZS 1715/1716 approved. In enclosed spaces a respirator with an independent air supply should be worn.• Wear cotton overalls buttoned to the neck and wrist, a washable hat and impervious footwear.• Wear elbow-length PVC gloves.• Keep working clothes separate. Remove soiled or soaked clothing immediately. Clean them separately, taking suitable precautions, or destroy if necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear light brown liquid
Odour:	Aromatic
pH:	2.8 – 3.8 (1% in water)
Vapour pressure:	3.3×10^{-5} hPa at 20° C (omethoate); 0.49 kPa at 20° C (solvent)
Vapour density:	4.6 – solvent (air = 1)
Boiling point:	146° C (solvent)
Freezing/melting point:	Not available
Solubility:	Soluble in water
Specific Gravity:	Approx. 1.2 at 20° C
Flash Point:	45° C
Flammability (explosive) limits:	Not available
Auto-ignition temperature:	332° C (omethoate); 333° C (solvent)
Partition coefficient (octanol/water):	Omethoate: $\log P_{ow} = -0.74$

Date of Issue: March 25, 2003

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Hazardous polymerisation	Will not polymerise.
Conditions to avoid	Heat, flames, sparks.
Incompatible materials	Oxidising agents, alkaline materials, acids
Hazardous decomposition products	In a fire, hydrogen cyanide, carbon monoxide, phosphorus pentoxide, sulphur dioxide and nitrogen oxides may be formed.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Omethoate, the active ingredient in Folimat 800, is an anticholinesterase compound. Symptoms typical of cholinesterase inhibition (for all routes of entry):

Mild cases

Headache, blurred vision, weakness, sweating, mild chest pain, nausea and vomiting.

Severe cases

Cyanosis (blueness of the skin, as from lack of oxygen), muscular twitching, spasms, miosis (pinpoint pupils) and respiratory paralysis. These symptoms commence from one to three hours after excessive exposure.

Inhalation	Poisonous by inhalation.
Skin contact	Poisonous if absorbed by skin contact. Will irritate the skin.
Eye contact	Irritating to the eyes.
Ingestion	Very dangerous. Poisonous if swallowed.

ANIMAL TOXICITY DATA

Acute:

Oral toxicity	LD ₅₀ rat: approx. 40 mg/kg (<i>derived from data for Folimat SL 500</i>)
Dermal toxicity	LD ₅₀ rat: approx. 500 mg/kg (<i>derived from data for Folimat SL 500</i>)
Inhalation toxicity	LC ₅₀ (4 h) rat: 0.3 mg/L aerosol (<i>active ingredient</i>)
Skin irritation	Non irritant (rabbit) (<i>derived from data for Folimat SL 500</i>)
Irritation to mucous membranes	Slightly irritating (rabbit) (<i>derived from data for Folimat SL 500</i>)

Date of Issue: March 25, 2003

11. TOXICOLOGICAL INFORMATION - continued

Sensitisation Omethoate is a skin sensitiser.

Chronic:

Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. The main health effects from repeated exposure would be toxic symptoms of cholinesterase inhibition as described above. Animal studies with omethoate have shown no evidence of oncogenic effect, no evidence of carcinogenic effects and no teratogenic potential.

The long term effects in animals noted for the solvent, 1-methoxy-2-propyl acetate, were headaches, dizziness and possible nausea. The solvent was not mutagenic in the Ames test, and did not cause teratological or other developmental effects.

12. ECOLOGICAL INFORMATION

Very toxic to aquatic invertebrates. Dangerous to bees.
DO NOT contaminate streams, rivers or waterways with Folimat 800 or the used containers.

Ecotoxicity

Omethoate:

Fish toxicity:

LC₅₀: 30 mg/L (96 h); golden orfe (*Leuciscus idus melanotus*)

LC₅₀: 9.1 mg/L (96 h); rainbow trout (*Oncorhynchus mykiss*)

Aquatic invertebrate toxicity:

EC₅₀: 0.022 mg/L (48 h); *Daphnia magna*

Algae toxicity:

IC₅₀: 167.5 mg/L (72 h); green algae (*Scenedesmus subspicatus*)

Bird toxicity:

LD₅₀: 79.7 mg/kg; male Japanese quail

LD₅₀: 83.4 mg/kg; female Japanese quail

Environmental fate, persistence and degradability

Omethoate has a relatively high mobility in soil but is very rapidly metabolised.
DT₅₀: only a few days. The main metabolite is CO₂. Aged leaching studies revealed that metabolites have only a low leaching potential.

13. DISPOSAL CONSIDERATIONS

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 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 as hazardous waste via a licensed disposal contractor to an approved landfill. Do not discharge into drains or sewers.

MATERIAL SAFETY DATA SHEET



Date of Issue: March 25, 2003

14. TRANSPORT INFORMATION

UN number	3017
Proper shipping name	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE (contains omethoate, 1-methoxy-2-propyl acetate)
Class and Subsidiary Risk	6.1 3
Packing Group	II
EPG	Guide 17 – Dangerous Goods - Initial Emergency Response Guide
Hazchem code	3W
Marine Pollutant	No

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988
National Registration Authority approval number: 33055

Training in the use of farm chemicals is recommended before handling this product.

See also Section 2.

16. OTHER INFORMATION

Trademark information Folimat® is a Registered Trademark of Bayer.

Preparation information Replaces August 1, 2002 MSDS.
Reasons for revision: 16 heading format, R phrases, dangerous goods Packing Group and Proper shipping name.

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