

MATERIAL SAFETY DATA SHEET

Page 1 of Total 5
Date of Issue: May 2006
MSDS No. FMC/BT&O/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **BRIGADE[®] T & O
INSECTICIDE/MITICIDE**

Other Names: Bifenthrin.
Use: Insecticide and Miticide to control a range of pests.
Company: FMC Australasia Pty Ltd.
Address: Unit 6, 9 Archimedes Place, 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 NOHSC Australia.
Not classified as a Dangerous Good according to the ADG Code.**

Risk phrases: R22 Harmful if swallowed.
Safety Phrases: S2 Keep out of reach of children.
S13 Keep away from food, drink and animal feeding stuffs.
S36/37 Wear suitable protective clothing and gloves.
S39 Wear eye/face protection.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

<i>CHEMICAL</i>	<i>CAS NUMBER</i>	<i>PROPORTION</i>
Bifenthrin	82657-04-3	8% w/w
Other ingredients determined not to be hazardous	mixture	5 - 20% w/w
Water	7732-18-5	60 - 90% w/w

SECTION 4 FIRST AID MEASURES

FIRST AID

Swallowed: If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

Eye: If in eyes, hold eyes open and flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Skin: If on skin, wash with soap and water. Remove contaminated clothing. If irritation occurs and persists see a doctor.

Inhaled: Remove patient to fresh air. If breathing discomfort occurs, obtain medical attention.

SECTION 4 | FIRST AID MEASURES (Continued)

Advice to Doctors: Bifenthrin the active ingredient in this product is a pyrethroid insecticide. The product has moderate oral toxicity and may produce minor irritation. After removal from exposure treatment is symptomatic and supportive. Digestible fats, oils, alcohol and milk products increase absorption and should be avoided.

SECTION 5 | FIRE FIGHTING MEASURES

Specific Hazard: This product consists of more than 60% water, and is not a fire hazard.

Extinguishing media: Foam, CO₂ or dry chemical. Soft stream water fog if no alternatives. Contain all runoff.

Hazards from combustion products: On heating may emit toxic fumes of carbon monoxide, carbon dioxide, hydrogen chloride, chlorine, fluorine and hydrogen fluoride etc.

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.

SECTION 6 | ACCIDENTAL RELEASE MEASURES

Emergency procedures: Isolate and post spill area. Keep out unprotected persons and animals. Wear prescribed protective clothing and equipment. Large spills should be dyked and absorbed with absorbent material such as sand, clay or cat litter. Vacuum shovel or pump spilled material into an approved container and dispose of as listed in section 13 or according to the Australian Standard 2507 - Storage and Handling of Pesticides.

Material and methods for containment and cleanup procedures: To clean spill area, tools and equipment, wash with a solution of soap, water and acetic acid/vinegar. Follow this with a neutralisation step of washing the area with a bleach or caustic soda ash solution. Finally, wash with a strong soap and water solution. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected.

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: Ensure containers are kept closed until using product. Avoid skin and eye contact and breathing vapour. When opening the container and preparing spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow length nitrile gloves and face shield or goggles.

Conditions for Safe Storage: Store in the closed original container, in a cool well ventilated area, out of direct sunlight. Store in a room or place away from children, animals, food, feed stuffs, seed and fertilizers.

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:

No exposure standard for bifenthrin has been established by NOHSC Australia.

Biological Limit Values:

No biological limit allocated.

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Engineering controls:

Use in well ventilated area only. Use local exhaust at all process locations where spray may be emitted. Ventilate all transport vehicles prior to unloading. Keep containers closed when not in use.

Personal Protective equipment (PPE):

Work Clothing: Wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat, elbow-length PVC gloves and face shield or goggles.

Eye Protection: When using product, wear chemical protective goggles or face shield.

Respiratory Protection: If inhalation risk exists, wear a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (Australian Standards).

Gloves: Wear chemical protective gloves made of materials such as nitrile, Viton[®] brand or PVC when handling this product. Inspect regularly for leaks. Wash the outside of gloves with soap and water prior to removal.

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9 | PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Beige to white liquid.
Odour:	Slight musty odour.
pH:	Not available.
Boiling point:	Not available.
Freezing point:	Not available.
Solubility in Water:	Product suspends in water.
Specific Gravity:	1.02 g/mL.
Flammability:	Not flammable.
Corrosive hazard:	Non corrosive; compatible with stainless steel containers & polyethylene used in spray tanks and parts.
Flashpoint (°C) :	Not applicable - not combustible.
Poisons Schedule:	Product is a schedule 6 poison.

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: No particular conditions to avoid.

Incompatible materials: No particular materials to avoid.

Hazardous decomposition products: When the product is heated to high temperatures, the active constituent will decompose and emit toxic fumes.

Hazardous reactions: No particular reactions to avoid.

SECTION 11 | TOXICOLOGICAL INFORMATION

Potential Health Effects:

Studies with laboratory animals have shown this product to be harmful if swallowed. Ingestion of large doses of bifenthrin by laboratory animals produced signs of toxicity which included clonic convulsions, tremors and bloody nasal discharge. Not irritating to eyes and skin.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Acute

Swallowed: This product is harmful if swallowed; the acute oral LD₅₀ (rat) = 632 mg/kg.

Eye: No irritating to eye. Product can be absorbed through the eyes.

Skin: This product has a low dermal toxicity. The dermal LD₅₀ (rabbit) > 2000 mg/kg. Skin sensitising may occur in sensitive individuals.

Inhaled: Acute inhalation LC₅₀ > 11.58 mg/L/4 hours. Not expected to be an inhalation hazard.

Chronic: No data available on this formulation. In studies with laboratory animals, Bifenthrin Technical did not cause teratogenicity or reproductive toxicity. Tremors were associated with repeated exposure of dogs, rats, rabbits and mice to Bifenthrin. The overall results from a battery of genotoxicity studies indicate that Bifenthrin is not considered to be genotoxic. Ames test results were negative.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: The active ingredient, Bifenthrin, is highly toxic to fish and aquatic arthropods with LC₅₀ values ranging from 0.0038 µg/L to 17.8 µg/L. In general, the aquatic arthropods are the most sensitive species. Care should be taken to avoid contamination of the aquatic environment. Bifenthrin had no effect on molluscs at its limit of water solubility. Bifenthrin is only slightly toxic to both waterfowl and upland game birds with LC₅₀ values range from 1800 mg/kg to > 2,150 mg/kg. *Dangerous to Fish:* Do not contaminate sewers, drains, dams, creeks or any other waterways with product or the used container.

Environmental Properties: The active ingredient, Bifenthrin, degrades at a moderate rate in agricultural soils (t_{1/2} = 50 to 205 days), and more rapidly on the surface of bare soils (t_{1/2} = 7 to 62 days). Bifenthrin is tightly bound in most soils and has extremely low water solubility.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal: Dispose of waste as indicated below or according to the Australian Standard 2507 - Storage and Handling of Pesticides. Wear prescribed protective clothing and equipment. 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 a suitable solution (i.e. organic solvent, detergent, bleach or caustic soda) and add the solution to the drums of waste already collected. Label for contents. Dispose of drummed wastes, including decontamination solution, in accordance with the requirements of Local or State Waste Management Authorities.

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

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 containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If not available bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and roots. Empty containers and product should not be burnt.

SECTION 14 | TRANSPORT INFORMATION

Road & Rail Transport: Brigade T&O is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Marine and Air Transport: Brigade T&O is a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:- UN 3082, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name "ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains 8% Bifenthrin)".

SECTION 15 | REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of NOHSC Australia. (Xn). Under the Standard for Uniform Scheduling of Drugs and Poisons (SUSDP No. 20), this product is a schedule 6 poison. This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 60405. Product is not classified as a Dangerous Good according to the ADG Code (6th Ed). Product is classified as a Dangerous Good according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA).

SECTION 16 | OTHER INFORMATION

Issue Date: 11 May 2006 (First issue).

Key to abbreviations and acronyms used in this MSDS:

- Genotoxic Capable of causing damage to genetic material, such as DNA.
- Oedema Accumulation of fluid in tissues.
- ADG Code Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
- NOHSC National Occupational Health and Safety Commission.
- PPE Personal protective equipment.
- Teratogen An agent capable of causing abnormalities in a developing foetus.

References

1. "Search Hazardous Substances". Dept. of Employment and Workplace Relations. Office of the Australian Safety and Compensation Council website. (2006).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.

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