MATERIAL SAFETY DATA SHEET

Date of Issue: July 2005
MSDS No. FMC/AXE/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: AXE INSECTICIDE

Other Names: Permethrin, Permethrin 40:60.
Use: Agricultural Insecticide.
Company: FMC (Chemicals) 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.
Not classified as a Dangerous Good according to the ADG Code

Risk phrases:	R20	Harmful if inhaled.
	R36/37	Irritating to eyes and respiratory system.
	R43	May cause sensitisation by skin contact.
	R65	Harmful: May cause lung damage if swallowed.
Safety Phrases:	S2	Keep out of reach of children.
	S13	Keep away from food, drink and animal feedstuffs.
	S23	Do not breathe vapour or spray.
	S24/25	Avoid contact with skin and eyes.
	S36/37	Wear suitable protective clothing and gloves.
	S39	Wear eye/face protection.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION (% w/w)*
Permethrin	52645-53-1	500 g/L
Liquid Hydrocarbons	64742-94-5	30 - 60%
Emulsifiers	mixture	1-10%

SECTION 4 FIRST AID MEASURES

FIRST AID

Swallowed: If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia (13 11 26). If swallowed, do not induce vomiting. Give a glass of water. If any discomfort persists seek medical advice.

Eye: If in eyes, hold eyes open, flood with water. If discomfort persists see a doctor.

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

SECTION 4 FIRST AID MEASURES (Continued)

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

Advice to Doctors: The signs and symptoms of poisoning with permethrin are not very pronounced and are likely to consist of hypersensitivity type reactions. There is no specific antidote to permethrin. Symptomatic and supportive treatment is indicated.
The formulation also contains petroleum distillates that can cause severe pneumonitis or fatal pulmonary oedema if aspirated. Consideration should be given to gastric lavage with an endotracheal tube in place. Treatment is otherwise symptomatic and supportive.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Product is a combustible liquid. Flash point > 61°C.
Extinguishing media: Foam, CO_2 or dry chemical. Soft stream water fog if no alternatives. Contain all runoff.
Hazards from combustion products: On burning, will emit toxic fumes.
Precautions for fire-fighters and special protective equipment: Isolate fire area. Remove sources of ignition. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe or contact smoke, gases or vapours generated.

SECTION 6 ACCIDENTIAL 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. Vacuum, shovel or pump spilled material into an approved container and dispose of as listed below.
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.
Dispose of waste as indicated below or according to Australian Standard 2507 - Storage & Handling of Pesticides. Wear protective clothing such as full body cover barrier suit, eg. a rubber rain suit. Keep out unprotected persons and animals.
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: Combustible liquid, remove all sources of ignition when handling product. 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. When using the prepared spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow length nitrile gloves.

Conditions for Safe Storage: Combustible liquid, do not store near sources of ignition. Must be stored in combustible goods stores complying with Commonwealth, State or Territory regulations. DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in the closed original container, in a cool well ventilated area, out of direct sunlight.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:
No exposure standard for permethrin has been established by NOHSC Australia, however FMC recommend an 8 hour TWA = 5 mg/m³.

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Use in well ventilated area only. Ensure no sources of ignition are in the area of use. 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 and a washable hat, elbow-length nitrile 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:	Clear brown coloured liquid.
Odour:	Solvent (hydrocarbon) odour.
Boiling point:	Not available.
Freezing point:	Not available.
Specific Gravity:	1.05 g/mL.
pH:	Not available.
Solubility in Water:	Product emulsifies in water.
Flammability:	Combustible liquid.
Corrosive hazard:	Non corrosive; compatible with stainless steel containers & polyethylene used in spray tanks and parts.
Flashpoint (°C) :	>61°C (CC).
Flammability Limits (%):	Not established.
Poisons Schedule:	Product is a schedule 6 poison.

SECTION 10 STABILITY AND REACTIVITY

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

SECTION 11 TOXICOLOGICAL INFORMATION

Potential Health Effects:
Studies with laboratory animals have shown permethrin (the active ingredient in this product) to have moderate oral and low dermal and inhalation toxicity. It is minimally irritating to the eyes and practically non-irritating to the skin. Permethrin may cause skin sensitisation in sensitive individuals. Experience to date indicates that contact with permethrin may produce skin sensations such as numbing, burning or tingling. These sensations are reversible and usually subside within 12 hours. Large doses of permethrin ingested by laboratory animals

produced signs symptoms such as diarrhoea, salivation, tremors and intermittent convulsions. Overexposure of animals to permethrin via inhalation has also produced hyperactivity and hypersensitivity.

Acute

Swallowed: Product is harmful. Acute oral LD_{50} (rat) = 1479 mg/kg. Swallowing can result in nausea, vomiting and central nervous system depression (like those of drunkenness). Swallowing large amounts may result in muscle tremors, central nervous system depression, convulsions and coma. Breathing in vomit may lead to aspiration pneumonia (inflammation of the lung)

Eye: May be irritating to the eyes.

Skin: This product has a low dermal toxicity. The dermal LD_{50} in the rabbit is > 2000 mg/kg. May cause skin sensitisation in sensitive individuals. Skin contact may result in irritation with a degreasing action on the skin. Repeated or prolonged skin contact may lead to allergic contact dermatitis. May cause tingling, burning, itching or numbness in exposed areas which is transient, that can last up to 36 hours.

Inhaled: Inhalation of vapour may produce irritation of the mucous membranes of the respiratory tract. Breathing vapours can result in headaches, dizziness and possible nausea.

Chronic: No data available on this formulation. In studies with laboratory animals, Permethrin Technical did not cause teratogenicity or reproductive toxicity. The overall results from a battery of genotoxicity studies indicate that permethrin is not considered to be genotoxic. Ames test results were negative. The potential for induction of oncogenicity is extremely low. Long term feeding studies in animals resulted in increased liver and kidney weights, induction of liver microsomal drug metabolising enzyme system, and histopathological changes to the lungs and liver.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: No data is available on Axe Insecticide. The active ingredient, Permethrin is highly toxic to aquatic organisms. Marine species are often more sensitive than freshwater species. Permethrin is only slightly toxic to birds with acute oral LD_{50} > 3600 mg/kg.

Environmental Properties: No data is available on Axe Insecticide. The active ingredient, Permethrin, degrades at a moderate rate in soils. Permethrin is tightly bound in most soils (K_{oc} = 86,000), with little potential for movement into soil or groundwater. Permethrin has a Log P_{ow} of 6.1, but because of the ease with which biological systems degrade the molecule, the potential for bioaccumulation and accumulation in the environment is low.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal: Dispose of wastes, including decontamination solution, in accordance with the requirements of Local or State Waste Management Authorities.

Disposal of empty containers: Break, crush, 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. Empty containers should not be burnt, heated or welded, as fumes may be an explosive hazard.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: Axe Insecticide is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail. Product is a C1 combustible liquid for storage purposes.

Marine and Air Transport: Axe Insecticide 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 50% Permethrin).

SECTION 15 REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of NOHSC Australia. (Xi, Xn).
Under the Standard for Uniform Scheduling of Drugs and Poisons (SUSDP No. 19), this product is a schedule 6 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 54245.
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: 12 July 2005 (revised issue). Revision to 16 section format.

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).
Genotoxic	Capable of causing damage to genetic material, such as DNA.
NOHSC	National Occupational Health and Safety Commission.
Oedema	Accumulation of fluid in tissues.
PPE	Personal protective equipment.
TWA	The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.

References

1. "National Exposure Standards for Atmospheric Contaminants in the Occupational Environment". NOHSC Australia, Guidance Note NOHSC:3008(1995).
2. "List of Designated Hazardous Substances". NOHSC Australia. NOHSC:10005(1999).
3. "Draft Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2003)]. April 2003.

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