



Material Safety Data Sheet

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Infosafe No. 3NU97 Issue Date : July 2006 ISSUED by NUFARM

Product Name : ENDOSULFAN 350EC Insecticide

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name ENDOSULFAN 350EC Insecticide
Product Code 1125
Product Type Group 2A Insecticide
Company Name NUFARM AUSTRALIA LIMITED. (ABN 80 004 377 780)
Address 103-105 Pipe Road Laverton North
Victoria 3026 Australia
Emergency Tel. 24hr 1800 033 498
Telephone/Fax Number Tel: (03) 9282-1000 Fax: (03) 9282-1001
Recommended Use For the control of Helicoverpa, Rough Bollworm, Potato Moth, Redlegged Earth Mites, Thrips and other pests as per the directions of use table on the label.
RESTRICTED CHEMICAL PRODUCT -
ONLY TO BE SUPPLIED TO OR USED BY AN AUTHORISED PERSON.
A CONDITION OF REGISTRATION OF THIS PRODUCT IS THAT IT WILL ONLY BE SUPPLIED TO AN AUTHORISED PERSON. TO DO OTHERWISE IS AN OFFENCE UNDER THE AGVET CODE.
Other Information This MSDS describes, to the best of our knowledge, the properties of the concentrated product. The physical properties and some of the assessments do not apply to the properties of the product once it has been diluted for application. Acute health effects of the diluted product are likely to be much less severe.

2. HAZARDS IDENTIFICATION

Hazard Classification HAZARDOUS SUBSTANCE.
DANGEROUS GOODS.
Hazard classification according to the criteria of NOHSC.
Dangerous goods classification according to the Australia Dangerous Goods Code.
Risk Phrase(s) R24/25 Toxic in contact with skin and if swallowed.
R36 Irritating to eyes.
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin dryness and cracking.
R67 Vapours may cause drowsiness and dizziness
Safety Phrase(s) S1/2 Keep locked up and out of reach of children.
S13 Keep away from food, drink and animal feeding stuffs.
S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 Wear suitable gloves and eye/face protection.
S45 In case of accident or if you feel unwell seek medical advice immediately
Other Information Poisons Schedule S7 DANGEROUS POISON

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization Liquid

Ingredients	Name	CAS	Proportion
	Liquid Hydrocarbon		646 g/L
	Endosulfan	115-29-7	350 g/L
	Calcium dodecylbenzene sulfonate	26264-06-2	0-10 %
	Nonoxynol	9016-45-9	0-10 %

4. FIRST AID MEASURES



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Inhalation	Remove affected person to fresh air until recovered. If symptoms persist, seek medical attention immediately. If breathing is difficult, oxygen may be given by a trained person. Apply CPR if there is no breathing and NO pulse.
Ingestion	If swallowed do NOT induce vomiting; seek medical advice immediately and show this container or label or contact the Poisons Information Centre on 13 11 26 (Aust). Make every effort to prevent vomit from entering the lungs by careful placement of the patient. The above first aid instructions are mandated by the Commonwealth Department of Health and Aged Care via the National Drugs and Poisons Schedule. These instructions are suitable for ingestion of spray solution and small amounts of concentrate; however, if SUBSTANTIAL AMOUNTS of the concentrate have been swallowed (more than about 5ml) AND if medical assistance is more than 30 minutes away, the induction of vomiting should be CONSIDERED, preferably based on MEDICAL ADVICE if a physician can be contacted by phone. All care must be taken to prevent vomit from being inhaled. Do not give anything by mouth to a semi-conscious or unconscious person.
Skin	Wash affected areas thoroughly with soap and water. Remove contaminated clothing and launder before re-use. Seek medical advice, but only after the exposed skin has been thoroughly washed.
Eye	If in eyes, hold eyelids open and wash with copious amounts of water for at least 15 minutes. Seek medical advice immediately.
First Aid Facilities	If poisoning occurs, contact a doctor or Poisons Information Centre on 13 11 26 (Australia).
Advice to Doctor	Treat symptomatically. Onset of symptoms may be delayed by up to 48 hours. Treatment is aimed at controlling convulsions, coma and respiratory depression. Cardio-vascular function must be observed. To control convulsions, use clonazepam IV or diazepam IV or per rectum. Intravenous barbiturates may also be used. Once convulsions are controlled further treatment with Phenytoin or Sodium Valporate should be continued as long as required. Do NOT give fats, oils or milk since these will enhance absorption from the intestinal tract. If the patient is conscious and a large quantity of endosulfan has been ingested, not more than 1 hour ago, perform gastric lavage only after tracheal intubation. This should be followed by intragastric administration of a large amount of activated charcoal slurry and a laxative. Opiates, adrenaline and nor-adrenaline should only be given with extreme caution. Aminophylline, atropine or oily laxatives should not be administered. Do NOT give stimulants, especially epinephrine, as they may cause ventricular fibrillation. If vomiting has occurred watch for solvent causing pulmonary pneumonitis.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media Water fog, foam, carbon dioxide or dry chemical.

Hazards from Combustion Products May emit toxic fumes of hydrogen chloride, oxides of sulphur or phosgene if involved in fires or exposed to extreme heat.

Special Protective Equipment for fire fighters Breathable air apparatus must be worn when fighting a fire in which this product is involved.

Hazchem Code 2X

6. ACCIDENTAL RELEASE MEASURES



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Spills & Disposal	Contain spill and absorb with clay, sand, soil or proprietary absorbent (such as vermiculite). Collect spilled material and waste in sealable open-top type containers for disposal. On-site disposal of concentrate is not acceptable. If possible, ring 1800 033 498 for specialist advice.
Personal Protection	For appropriate personal protective equipment (PPE), refer Section 8.
Clean-up Methods - Large Spillages	Place damaged containers in recovery bins (if available) and return to manufacturer.
Environmental Precautions	Prevent from entering drains, waterways or sewers.

7. HANDLING AND STORAGE

Precautions for Safe Handling	Do NOT spray in high winds. Do NOT contaminate dams, rivers or streams, or any other water bodies with chemical or used containers. All users of this product are required to keep records of sprays in accordance with specifications found under 'record keeping requirements' in the booklet attached to the container. Records of sprays are subject to audit by authorised inspectors.
Conditions for Safe Storage	Store in a locked enclosure. Store in the closed, original container in a cool, well ventilated area. Do not store for prolonged periods in direct sunlight. Keep container tightly sealed and do not store with seed, fertilisers or foodstuffs.
Other Information	Always read the label and any attached leaflet before use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

National Exposure Standards	The manufacturer of the solvent has recommended an occupational exposure limit of 100 mg/m ³ ; 17ppm TWA, as total hydrocarbon. NOHSC has set the following exposure standard for endosulfan : TLV (TWA) 0.1 mg/m ³ , STEL -. SK 'SK' notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.
Engineering Controls	Handle in well ventilated areas, generally natural ventilation is adequate.
Personal Protective Equipment	When opening the container, preparing the spray and using the prepared spray wear protective waterproof clothing, elbow-length PVC gloves, water resistant footwear and full-facepiece respirator (or goggles and half facepiece respirator). Re-entry period: Do not enter treated area until spray has dried.
Hygiene Measures	After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash contaminated clothing and safety equipment.
Requirements Concerning Special Training	NSW regulations require that people who use pesticides in their job or business must have training in the application of the materials. By 1st September, 2005 all users must have received such training.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Appearance	Clear, brown liquid
Odour	Typical endosulfan odour
Melting Point	<0°C
Boiling Point	> 180 °C
Solubility in Water	Forms an emulsion in water.
Specific Gravity	1.082



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Vapour Pressure 1.33 mPa for technical endosulfan @ 25°C
Volatile Component 60%
Octanol/Water Partition Coefficient Kow Log P is 4.75 for technical endosulfan
Flash Point 69 °C
Flammability Combustible
Flammable Limits - Lower 0.9%
Flammable Limits - Upper 6.0%

10. STABILITY AND REACTIVITY

Chemical Stability Will hydrolyse non-violently under alkaline conditions thus losing its efficacy. Iron will catalyse the reaction.

Hazardous Reactions Keep away from strong oxidising agents.

Hazardous Polymerization Hazardous polymerisation is not possible.

11. TOXICOLOGICAL INFORMATION

Inhalation Inhalation of vapours is not likely to be a major concern because of the low volatility of the solvent present but spray mists are a greater concern due to endosulfan, and inhalation of spray mist should be avoided. High vapour concentrations may be irritating to the respiratory tract and may cause headaches, dizziness, drowsiness, anaesthesia, and other central nervous system effects.

Ingestion Possible symptoms of exposure include headache, dizziness, loss of coordination, nausea, vomiting and abdominal pain. Ingestion of large doses may lead to unconsciousness and convulsions. If aspirated into the lung, e.g. from vomiting, the presence of solvent may result in chemical pneumonitis or other lung damage.

Skin Prolonged contact with the concentrate may result in absorption of endosulfan in harmful amounts. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis.

Eye The concentrate will cause irritation of the eyes.

Chronic Effects Chronic feeding studies in animals do not indicate any cumulative toxicity and show that the compound is neither a carcinogen nor a teratogen.

Acute Toxicity - Oral LD50 (rat) 70 mg/kg for technical endosulfan

Acute Toxicity - Dermal LD50 (rat) 500 mg/kg for technical endosulfan

Acute Toxicity - Inhalation LC50 (rat) (4hr) 0.013 - 0.035 mg/l

Eye Irritation Moderate eye irritant.

Skin Irritation Mild skin irritant.

Skin Sensitisation Product is not a skin sensitiser.



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Human Effects Endosulfan is a central nervous system stimulant. The liver and the kidney are the other organs significantly affected by endosulfan. Poisoning by the endosulfan and other cyclodiene insecticides is more likely to begin with the sudden onset of convulsions preceeded by vomiting. Seizures caused by cyclodienes may appear as long as 48 hours after exposure, and then may recur periodically over several days following the initial episode. Tonic-clonic convulsions usually are accompanied by confusion, incoordination, excitability, or, in some instances, coma and hypotension. Respiratory failure may also occur. A few deaths, both deliberate and accidental have been recorded due to endosulfan. In cases of serious poisoning the symptoms commenced with malaise, vomiting, weakness or confusion, followed by convulsions at a later stage and then loss of consciousness. For survivors, recovery has occurred over a few days.

Other Information The Australian Acceptable Daily Intake (ADI) for endosulfan for a human is 0.006 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 0.6 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Comm. Dept. of Health and Ageing, 'ADI List', TGA, September 2005).

12. ECOLOGICAL INFORMATION

Known Harmful Effects on the Environment Highly toxic to fish and aquatic organisms.

Other Precautions Do not contaminate dams, waterways or sewers with this product or the containers which have held this product.
Do not spray in high winds.

Environ. Protection Spray drift should be avoided, read the label for more information.
DO NOT apply under weather conditions or from spraying equipment that could be expected to cause spray to drift onto wetlands, natural surface waters, neighbouring properties or other sensitive areas.

Acute Toxicity - Fish LC50 (96 hr) for golden orfe is 0.002 mg/l for endosulfan

Acute Toxicity - Daphnia EC50 (48 hr) for daphnia is 0.075 - 0.75 mg/l for endosulfan.

Acute Toxicity - Algae EC50 (72 hr) for green algae 0.56 mg/l.

Acute Toxicity - Other Organisms The following data is for the active ingredient, endosulfan.
LD50 for mallard ducks is 205 - 245 mg/kg
Dangerous to bees.
Should not be applied while bees are actively foraging.

13. DISPOSAL CONSIDERATIONS

Product Disposal On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals (ChemCollect).



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Container Disposal Do not use this container for any other purpose.
Triple rinse containers, add rinsate to the spray tank, then offer the container for recycling/reconditioning, or puncture top, sides and bottom and dispose of in landfill in accordance with local regulations.
drumMUSTER is the national program for the collection and recycling of empty, cleaned, non returnable crop production and on-farm animal health chemical containers. If the label on your container carries the drumMuster symbol, triple rinse the container, ring your local Council, and offer the container for collection in the program.
If recycling, replace cap and return clean containers to recycler or designated collection point.
If not recycling, puncture or shred and bury containers in local authority landfill.
If no landfill is available, bury the containers below 500mm 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.
Returnable containers: empty contents fully into application equipment. Replace cap, close all valves and return to the point of supply for refill or storage.

14. TRANSPORT INFORMATION

U.N. Number 2996
Proper Shipping Name ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, N.O.S. - (contains Endosulfan)
DG Class 6.1
Hazchem Code 2X
Packaging Method 3.8.6.1
Packing Group III
Storage and Transport Considered dangerous for transport by the Australian Code for the Transport of Dangerous Goods by Road and Rail.
EPG Number 6A1
IERG Number 34
UN Number (Sea Transport) 2996
IMO Class/Packing Group Class 6.1; Packing Group III.
IMO Marine Pollutant Marine Pollutant
IMO Proper Shipping Name ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, N.O.S. (Contains Endosulfan)

15. REGULATORY INFORMATION

Poisons Schedule S7
Packaging & Labelling DANGEROUS POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING
Hazard Category Toxic, Irritant
AICS (Australia) All of the components in this product are listed on the Australian Inventory of Chemical Substances.

16. OTHER INFORMATION

Contact Person/Point Normal Hours: Mr Volker Maier Phone: (03) 9282 1000
After Hours: Shift Supervisor Phone: 1800 033 498
Revisions Highlighted The MSDS was reviewed. Minor changes were made to the information.
28th July 2006.



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