



Material Safety Data Sheet

CS: 1.4.21

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Infosafe No™ NU00W

Issue Date : July 2009

ISSUED by NUFARM

CS: 1.4.21

Product Name **CHLORPYRIFOS 500EC Insecticide**

Classified as hazardous

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	CHLORPYRIFOS 500EC Insecticide
Product Code	1030
Product Type	Group 1B Insecticide
Company Name	NUFARM AUSTRALIA LIMITED. (ABN 80 004 377 780)
Address	103-105 Pipe Road Laverton North Victoria 3026 Australia
Emergency Tel.	1800 033 498 (24hr Australia)
Telephone/Fax Number	Tel: +61 3 9282-1000 Fax: +61 3 9282-1001
Recommended Use	For control of a wide range of insect pests on fruit, vegetables, oilseeds, cotton, cereals, pasture, turf and other situations as specified in the Directions for Use Table on the label. THIS PRODUCT IS TOO HAZARDOUS FOR USE BY HOUSEHOLDERS. HOUSEHOLDERS MUST NOT USE THIS PRODUCT IN OR AROUND THE HOME.
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	Classified as hazardous 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)	Classified as hazardous R24/25 Toxic in contact with skin and if swallowed. R65 Harmful: may cause lung damage if swallowed.
Safety Phrase(s)	S28 After contact with skin, wash immediately with plenty of water S36/37 Wear suitable protective clothing and gloves. S45 In case of accident or if you feel unwell seek medical advice immediately S62 If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.
Other Information	Poisons Schedule S6

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization	Liquid												
Ingredients	<table><thead><tr><th><u>Name</u></th><th><u>CAS</u></th><th><u>Proportion</u></th></tr></thead><tbody><tr><td>Chlorpyrifos</td><td>2921-88-2</td><td>500 g/L</td></tr><tr><td>Liquid Hydrocarbons</td><td>64742-94-5</td><td>480 g/L</td></tr><tr><td>Other ingredients (considered non-hazardous)</td><td></td><td>Balance</td></tr></tbody></table>	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	Chlorpyrifos	2921-88-2	500 g/L	Liquid Hydrocarbons	64742-94-5	480 g/L	Other ingredients (considered non-hazardous)		Balance
<u>Name</u>	<u>CAS</u>	<u>Proportion</u>											
Chlorpyrifos	2921-88-2	500 g/L											
Liquid Hydrocarbons	64742-94-5	480 g/L											
Other ingredients (considered non-hazardous)		Balance											
Substance Chemical Family	Organophosphate												

4. FIRST AID MEASURES

Inhalation	Remove patient to fresh air. Obtain medical advice.
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



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	of Health and Ageing 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 one teaspoon) 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	If skin contact occurs, remove contaminated clothing and wash skin thoroughly with water. 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.
First Aid Facilities	If poisoning occurs, contact a doctor or the Poisons Information Centre (Australia) on 13 11 26.
Advice to Doctor	An anticholinesterase compound. If the material is dissolved in solvents, e.g., petroleum solvents, vomiting may cause pulmonary aspiration. Instead, the stomach should be emptied as soon as possible by careful gastric lavage (using a cuffed endotracheal tube already in place). Artificial respiration should be started at the first sign of respiratory failure. Cautious administration of fluids is advised, as well as general supportive and symptomatic pharmacological treatment and absolute rest. As early as possible, administer 2 mg of atropine sulfate i.v. and 1000-2000 mg of pralidoxime chloride or 250 mg of obidoxime chloride (adult dose) i.v. to patients suffering from severe respiratory difficulties, convulsions, and unconsciousness. Repeated doses of 2 mg of atropine sulfate should be given, as required, based on the respiration, blood pressure, pulse frequency, salivation, and convulsion conditions. The dose and the frequency of atropine varies with each patient, but the patient should remain fully atropinised (signs include dilated pupils, dry mouth, skin flushing). Diazepam should be given in all but the mildest cases in doses of 10 mg, s.c. or i.v., which may be repeated as required. For children, the doses are 0.04-0.08 mg of atropine/kg body weight, 250 mg of pralidoxime chloride per child, or 4-8 mg of obidoxime chloride/kg body weight. Morphine, barbiturates, phenothiazine derivatives, tranquillizers, and all kinds of central stimulants are contraindicated.

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 or phosgene if involved in fires or exposed to extreme heat.
Special Protective Equipment for fire fighters	Breathable air apparatus may have to be worn if material is involved in fires especially in confined spaces.
Hazchem Code	2X
Emergency Action in case of Fire	If exposed to fire, keep container cool by spraying with water.
Other Information	STOP FIRE WATER FROM ENTERING DRAINS OR WATER BODIES.

6. ACCIDENTAL RELEASE MEASURES

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. Dispose of at a landfill in accordance with local regulations. If possible, ring 1800 033 498 for specialist advice.
Personal Protection	For appropriate personal protective equipment (PPE), refer Section 8.

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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

Conditions for Safe Storage	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	No biological exposure limit allocated. NOHSC has set the following exposure standard for chlorpyrifos : TLV (TWA) 0.2 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. The manufacturer of the solvent has recommended an occupational exposure limit of 100 mg/m ³ ; 17ppm TWA, as total hydrocarbon.
Engineering Controls	Handle in well ventilated areas, generally natural ventilation is adequate.
Respiratory Protection	If exposure to vapour or spray is expected, a half face respirator with cartridge type A is recommended.
Personal Protective Equipment	When opening the container, preparing spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves and face shield or goggles. Wear impervious footwear such as plastic or rubber boots. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Appearance	Straw coloured liquid.
Melting Point	<0°C
Boiling Point	>150°C
Solubility in Water	Forms an emulsion in water.
Specific Gravity	1.09 - 1.11
pH Value	neutral
Vapour Pressure	2.7 mPa @ 25°C for chlorpyrifos
Vapour Density (Air=1)	>1
Volatile Component	40 - 50%
Surface Tension	26.6 mN/M
Flash Point	68°C (PMCC - AS2106)
Flammability	Combustible liquid. The spray mixture is not combustible.
Flammable Limits - Lower	0.6% v/v for solvent
Flammable Limits - Upper	7.0% v/v for solvent



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Kinematic Viscosity 4.56 x 10⁻⁶ m²/sec

10. STABILITY AND REACTIVITY

Incompatible Materials Avoid contact of the concentrate with strong alkalis and alkaline materials such as lime.

Avoid contact of the concentrate with strong acids.

Hazardous Reactions Keep away from strong oxidising agents, may react violently.**Hazardous Polymerization** Hazardous polymerisation is not possible.

11. TOXICOLOGICAL INFORMATION

Toxicology Information No harmful effects are expected if the precautions on the label and this MSDS are followed.**Inhalation** When applying the product as a spray avoid breathing in spray mist. Breathing in high concentrations of vapour can produce central nervous system depression, which can lead to loss of coordination, impaired judgement and if exposure is prolonged, unconsciousness.**Ingestion** Possible symptoms of exposure include: nausea, vomiting and central nervous system depression.

If aspirated into the lung, e.g. from vomiting, the presence of solvent may result in chemical pneumonitis or pulmonary oedema.

Skin The rate of absorption for chlorpyrifos is low hence, the product is moderately toxic by this route.

Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis.

Eye The concentrate may cause irritation of the eyes.**Chronic Effects** Regular exposure may result in lowering of cholinesterase activity which will recover within a few days after exposure ceases.**Reproductive Toxicity** Data indicates no reproductive effects.

Data indicates no teratogenic effects.

Carcinogenicity Data indicates no carcinogenic effects.**Acute Toxicity - Oral** LD50 (male rat) 345 mg/kg for a similar formulation
LD50 (female rat) 230 mg/kg for a similar formulation
LD50 (rat) 135 - 163 mg/kg for chlorpyrifos
LD50 (guinea pig) 504 mg/kg for chlorpyrifos
LD50 (rabbit) 1000 - 2000 mg/kg for chlorpyrifos
Acute Toxicity - Dermal LD50 (rat) 409 mg/kg for a similar formulation
LD50 (rat) >2000 mg/kg for chlorpyrifos
LD50 (rabbit) >5000 mg/kg for chlorpyrifos
Acute Toxicity - Inhalation LC50 (rat) (4hr) >0.2 mg/l for chlorpyrifos**Skin Sensitisation** Product is not a skin sensitiser.**Other Information** The Australian Acceptable Daily Intake (ADI) for chlorpyrifos for a human is 0.003 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 0.03 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 Office of Chemical Safety, 'ADI List', December 2008).

12. ECOLOGICAL INFORMATION

Persistence / Degradability Average field half life of chlorpyrifos is 33 - 56 days.**Known Harmful Effects on the Environment** The product is a marine pollutant for sea transport.**Other Precautions** Do not contaminate dams, waterways or sewers with this product or the containers which have held this product.

Do not spray on vegetation where honeybees are foraging.

Environ. Protection Spray drift should be avoided, read the label for more information.**Acute Toxicity - Fish** The following is data for the active ingredient, chlorpyrifos.



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Acute Toxicity - Daphnia LC50 (96hr) for bluegill sunfish is 0.002 - 0.010 mg/l.
LC50 (96hr) for rainbow trout is 0.007 - 0.051 mg/l.
Very toxic to fish.

Acute Toxicity - Other Organisms LC50 (48hr) for chlorpyrifos is 0.0017 mg/l.
Moderately toxic to birds.
LD50 for mallard ducks is 490 mg/kg
Bees: Toxic to bees. LD50 is 0.07 µg/bee.

13. DISPOSAL CONSIDERATIONS

Product Disposal 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 (ChemClear®).
On site disposal of the concentrated product is not acceptable.

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 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.

14. TRANSPORT INFORMATION

Transport Information It is good practice to separate this product from food, food related materials, animal feedstuffs, seed or fertilisers during transport.

U.N. Number 3018

Proper Shipping Name ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC - (CHLORPYRIFOS)

DG Class 6.1

Hazchem Code 2X

Packaging Method 3.8.6

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 6A3

IERG Number 35

15. REGULATORY INFORMATION

Poisons Schedule S6

National and or International Regulatory Information There is a legislative requirement in most States in Australia for workers to be medically monitored when using organophosphates, by:- 'estimation of red cell and plasma cholinesterase activity towards the end of the day on which organophosphates have been used'.
Ref: Control of Workplace Hazardous Substances, NOHSC:1005.

Packaging & Labelling POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Hazard Category Toxic

AICS (Australia) All of the components in this product are listed on the Australian Inventory of Chemical Substances.

16. OTHER INFORMATION



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Date of preparation Revised 23/07/2009

or last revision of

MSDS

Contact

Normal Hours: Mr Volker Maier

Phone: +61 3 9282 1000

Person/Point

After Hours: Shift Supervisor

Phone: 1800 033 498

Revisions

The MSDS was reviewed. Various changes were made to the information.

Highlighted

References to the use of atropine have been removed as per the APVMA.

Other minor changes made and HazChem code is now 2X.

...End Of MSDS...

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