

## SAFETY DATA SHEET



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Date of Issue: January 2014  
MSDS No. FMC/CHL500/1

### SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name: FMC CHLORPYRIFOS 500 INSECTICIDE**

**Other Names:** Chlorpyrifos. An organophosphorus pesticide.  
**Use:** A liquid broad spectrum agricultural insecticide.  
**Company:** FMC Australasia Pty Ltd.  
**Address:** 5 Palmer Place, Murarrie, Qld 4172  
**Telephone Number:** 07 3908 9208 **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 Safe Work Australia.  
Not classified as a Dangerous Good according to the ADG Code.  
Combustible Liquid (C1).**

**GHS Classification:**

Acute Toxicity – Oral: Category 4.  
Eye Damage/Irritation: Category 2A.  
Specific Target Organ Toxicity, single exposure: Category 1.  
Aspiration Hazard: Category 1.

**Signal Word:** DANGER.

**Hazard Statements:**

H304 May be fatal if swallowed and enters airways.  
H319 Causes serious eye irritation.  
H370 Causes damage to organs - May cause lung damage if swallowed.

**Precautionary statements:**

*Prevention:*

P264 Wash hands, arms and face thoroughly after handling.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection

*Response:*

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P307 + P311 IF exposed: Call a POISON CENTER or doctor/physician.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P321 Specific treatment (see ... on this label).  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.  
P330 Rinse mouth.

*Storage & Disposal:*

P405 Store locked up.  
P501 Dispose of contents/container in accordance with national regulations.

**SECTION 2 HAZARDS IDENTIFICATION (Continued)**

**Pictograms:**



**SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS**

**Ingredients:**

<b>CHEMICAL</b>	<b>CAS NUMBER</b>	<b>PROPORTION</b>
Chlorpyrifos	2921-88-2	500 g/L
Hydrocarbon liquid	64742-94-5	480 g/L
Other ingredients determined not to be hazardous	mixture	Balance

**SECTION 4 FIRST AID MEASURES**

**FIRST AID**

- Swallowed:** If swallowed do NOT induce vomiting. Wash mouth with water. If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 131 126. If swallowed, activated charcoal may be advised. Give atropine if instructed.
- Eye:** Immediately hold eyes open and flood gently with clean water until chemical is removed. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. If irritation persists, seek medical advice.
- Skin:** Remove contaminated clothing. Wash skin with soap and water to remove chemical. If skin is irritated, seek medical advice. Launder contaminated clothes before re-use.
- Inhaled:** Remove to fresh air and observe until recovered. If effects persist, seek medical advice. In severe case, symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

**Advice to Doctors:** Chlorpyrifos is an anti-cholinesterase compound. Atropine by injection, is the preferred antidote. Oximes, such as 2-PAM/Protopam, may be therapeutic if used early; however, use only in conjunction with atropine. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. This product also contains aromatic solvents which may produce a chemical pneumonitis; therefore, vomiting is not recommended, and lavage requires intubation. Activated charcoal and cathartics will assist gastrointestinal tract evacuation.

The formulation contains a high level (48%) of petroleum distillate that can cause severe pneumonitis or fatal pulmonary oedema if aspirated. Consideration should be given to gastric lavage with an endotracheal tube in place.

**SECTION 5 FIRE FIGHTING MEASURES**

**Specific Hazard:** Product is a combustible liquid (C1). Flash point > 62°C. There is a risk of an explosion from this product if commercial quantities are involved in a fire.

**Extinguishing media:** Foam, CO<sub>2</sub> or dry chemical. Soft stream water fog if no alternatives. Contain all runoff.

**Hazards from combustion products:** On burning will emit toxic fumes of carbon monoxide, carbon dioxide, hydrogen chloride, chlorine, phosphorous compounds 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 ACCIDENTIAL RELEASE MEASURES**

**Emergency procedures:** Isolate and post spill area. Keep out unprotected persons and animals. Wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves, goggles, chemical resistant footwear and a half facepiece respirator with combined dust and gas cartridge. 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 in section 13.

**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. Product is poisonous is absorbed by skin contact, inhaled or swallowed. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. Will irritate the eyes and skin. Avoid contact with the eyes and skin. Do not inhale vapour or spray mist. When opening the container, preparing the spray and using the prepared spray, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves, goggles, chemical resistant footwear and a half facepiece respirator with combined dust and gas cartridge. If clothing becomes contaminated with product or wet with spray, remove clothing immediately. If product on skin, immediately wash area with soap and water. If product on skin, immediately wash area with soap and water. If product is in the eyes, wash it out immediately with water, After using and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, goggles, respirator (and if rubber wash with detergent and warm water) and contaminated clothing..

**Conditions for Safe Storage:** DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in closed original containers, in a cool, well ventilated area away from children, animals, food and feedstuffs. Do not store for prolonged periods in direct sunlight. Do not store near sources of ignition or naked flames. This product is classified as a C1 (Combustible Liquid) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to state regulations for storage and transport requirements.

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**National Exposure Standards:**

Exposure guidelines have been established for this product by safe Work Australia.

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m <sup>3</sup> )
Chlorpyrifos (Sk)	0.2 mg/m <sup>3</sup>	Not set

TWA = Time-weight Average    STEL = Short Term Exposure level.

\* The 'sk' notation refers to the potential for dermal absorption of the material including mucous membranes and the eyes by contact with vapours or direct skin contact.

**Biological Limit Values:**

See Safe Work Australia guide on "Hazardous Chemicals Requiring Health Monitoring" and the section on Organophosphate Pesticides for worker monitoring protocols.

**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 close when not in use.

**SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)**

**Personal Protective equipment (PPE):**

General: When opening the container, preparing the spray and using the prepared spray, wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, elbow-length PVC gloves, goggles, chemical resistant footwear and a half facepiece respirator with combined dust and gas cartridge. If clothing becomes contaminated with product or wet with spray, remove clothing immediately. If product on skin, immediately wash area with soap and water. If product is in the eyes, wash it out immediately with water. After using and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, goggles, respirator (and if rubber wash with detergent and warm water) and contaminated clothing.

Personal Hygiene: Product is poisonous is absorbed by skin contact, inhaled or swallowed. Repeated exposure may cause allergic disorders. Repeated minor exposure may have a cumulative poisoning effect. Will irritate the eyes and skin. Avoid contact with the eyes and skin. Do not inhale vapour or spray mist.

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**

<b>Appearance:</b>	Yellow/tan liquid.
<b>Odour:</b>	Mercaptan type odour.
<b>Boiling point:</b>	Not available.
<b>Freezing point:</b>	Not available.
<b>Specific Gravity:</b>	Approx. 1.09 g/mL.
<b>pH:</b>	Not available.
<b>Solubility in Water:</b>	Product emulsifies in water.
<b>Flammability:</b>	Combustible liquid (C1).
<b>Flashpoint (°C):</b>	> 62°C.
<b>Flammability Limits (%):</b>	Not established.
<b>Poisons Schedule:</b>	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:** Do not store for prolonged periods in direct sunlight. Store away from sources of ignition. Avoid alkaline materials.

**Incompatible materials:** Avoid contact with oxidizing materials, acids and bases.

**Hazardous decomposition products:** On burning carbon monoxide, carbon dioxide, hydrogen chloride, chlorine, phosphorous compounds and hydrogen fluoride etc.

**Hazardous reactions:** Will not polymerise.

**SECTION 11 | TOXICOLOGICAL INFORMATION**

**Potential Health Effects:**

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, in-coordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. For chlorpyrifos, in animals, effects have been reported on the following organs: adrenal gland. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use of this product.

**SECTION 11 TOXICOLOGICAL INFORMATION (Continued)**

**Acute**

**Swallowed:** Harmful if swallowed. Acute oral LD<sub>50</sub> for similar products range from 230 to 310 mg/kg.

**Eye:** This product may cause eye irritation. Symptoms may include stinging and reddening of eyes and watering. If exposure is brief, symptoms should disappear once exposure has ceased.

**Skin:** May cause mild irritation of the skin, but unlikely to be sensitising. A single prolonged exposure may result in material being absorbed in large amounts. Repeated minor exposure may have a cumulative poisoning effect.

**Inhaled:** This product is harmful if inhaled. Excessive inhalation of spray mist may cause cholinesterase inhibition. Acute inhalation LC<sub>50</sub> > 0.2 mg/L/4 hour

**Chronic:** Repeated or prolonged exposure to organophosphates may result in the same effects as acute exposure including the delayed symptoms. Other effects reported in workers repeatedly exposed include impaired memory and concentration, disorientation, severe depression, irritability, confusion, headache, speech difficulties, delayed reaction times, nightmares, sleepwalking, and drowsiness or insomnia.

The formulation contains a high level (48%) of petroleum distillate that can cause severe pneumonitis or fatal pulmonary oedema if aspirated.

**Reproductive effects:** Current evidence indicates that chlorpyrifos does not adversely affect reproduction. No effects on reproduction occurred in a three-generation study with rats fed dietary doses as high as 1 mg/kg/day.

**Teratogenic effects:** Available evidence suggests that chlorpyrifos is not teratogenic. No teratogenic effects in offspring were found when pregnant rats were fed doses as high as 15 mg/kg/day for 10 days.

**Mutagenic effects:** There is no evidence that chlorpyrifos is mutagenic.

**Carcinogenic effects:** There is no evidence that chlorpyrifos is carcinogenic.

**Organ toxicity:** Chlorpyrifos primarily affects the nervous system through inhibition of cholinesterase, an enzyme required for proper nerve functioning.

**Fate in humans and animals:** Chlorpyrifos is readily absorbed into the bloodstream through the gastrointestinal tract if it is ingested, through the lungs if it is inhaled, or through the skin if there is dermal exposure. In humans, chlorpyrifos and its principal metabolites are eliminated rapidly with a half-life in the blood of approximately 1 day. Chlorpyrifos is eliminated primarily through the kidneys. Chlorpyrifos does not have a significant bioaccumulation potential. Following intake, a portion is stored in fat tissues but it is eliminated in humans, with a half-life of about 62 hours.

**SECTION 12 ECOLOGICAL INFORMATION**

**Environmental Toxicology:** Chlorpyrifos is moderately to very highly toxic to birds. Acute oral LD<sub>50</sub> = 8.41 mg/kg (pheasants), 112 mg/kg (mallard ducks), 21.0 mg/kg (house sparrows), and 32 mg/kg (chickens). At 125 ppm, mallards laid significantly fewer eggs. There was no evidence of other changes in hens fed dietary levels of 50 ppm of chlorpyrifos. Chlorpyrifos is very highly toxic to freshwater fish, aquatic invertebrates and estuarine and marine organisms. Cholinesterase inhibition was observed in acute toxicity tests of fish exposed to very low concentrations of this insecticide. The 96-hour LC<sub>50</sub> = 0.009 mg/L (mature rainbow trout), 0.098 mg/L (lake trout), 0.806 mg/L (goldfish), 0.01 mg/L (bluegill), and 0.331 mg/L (fathead minnow). When fathead minnows were exposed to a similar product for a 200-day period during which they reproduced, the first generation of offspring had decreased survival and growth, as well as a significant number of deformities. This occurred at approximately 0.002 mg/L exposure for a 30-day period. Chlorpyrifos accumulates in the tissues of aquatic organisms. Studies involving continuous exposure of fish during the embryonic through fry stages have shown bioconcentration values of 58 to 5100. Due to its high acute toxicity and its persistence in sediments, chlorpyrifos may represent a hazard to sea bottom dwellers. Smaller organisms appear to be more sensitive than larger ones. Aquatic and general agricultural uses of chlorpyrifos pose a serious hazard to wildlife and honeybees..

**SECTION 12 | ECOLOGICAL INFORMATION (Continued)**

**Environmental Properties:** Based largely or completely on information for chlorpyrifos. The photolysis half-life in water is 3-4 weeks. In the atmospheric environment, material is estimated to have a tropospheric half-life of 1.4 hours. Degradation is expected in the soil environment within days to weeks. Under aerobic soil conditions the half-life is generally 30-60 days. Expected to be relatively immobile in the soil ( $K_{oc} > 5000$ ).

**SECTION 13 | DISPOSAL CONSIDERATIONS**

**Spills & Disposal:** In the case of spillage, contain and absorb spilled material with absorbent material such as sand, clay or cat litter and 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. 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, non-returnable 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 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 container below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Empty containers and product should not be burnt.

Do not cut or saw empty containers, as there is the possibility that fumes inside the container maybe ignited and cause the container to explode.

**SECTION 14 | TRANSPORT INFORMATION**

**Road & Rail Transport:** FMC Chlorpyrifos 500 is classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail, International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA). UN 3018, Class 6, Packing Group III, Proper Shipping Name ORGANOPHOSPHORUS PESTICIDES, LIQUID, TOXIC N.O.S. (Contains 50% Chlorpyrifos). Hazchem code ● 3Z. Hazard Identification Number (HIN) 90.

This product is a Combustible Liquid (C1) for storage purposes.

**Marine and Air Transport:** Same as for Road and Rail transport.

**SECTION 15 | REGULATORY INFORMATION**

Classified as a hazardous substance according to criteria of Safe Work Australia. (Xi, Xn). Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 6 poison.

This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 68561.

Product is classified as a Dangerous Good according to the ADG Code (7<sup>th</sup> Ed), International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA).

*Requirements concerning special training:*

Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

**SECTION 16 OTHER INFORMATION**

Issue Date: 24 January 2014. Valid for 5 years. (First issue).

Key to abbreviations and acronyms used in this SDS:

- ADG Code: Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
- Ataxia: Inability to control the coordinate movements of the muscles.
- Bradycardia: Is a resting heart rate of under 60 beats per minute (adults).
- Carcinogen: An agent which is responsible for the formation of a cancer.
- Clonic: An abnormality in neuromuscular activity characterized by rapidly alternating muscular contraction and relaxation.
- Genotoxic: Capable of causing damage to genetic material, such as DNA.
- Haematopoietic: Pertaining to the formation of blood or blood cells.
- Lavage: The irrigation or washing out of an organ, as of the stomach or bowel.
- Mutagen: An agent capable of producing a mutation.
- Oedema: Accumulation of fluid in tissues.
- Teratogen: An agent capable of causing abnormalities in a developing foetus.
- Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. "Search Hazardous Substances". Safe Work Australia website. (2014).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2009.

This SDS 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 SDS 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 SDS.*