

MATERIAL SAFETY DATA SHEET



Emergency Phone: 1800-033-882 (24 hrs)
Dow AgroSciences Australia Ltd.
Frenchs Forest NSW 2086

LORSBAN* 500 EC INSECTICIDE

Effective Date: 22 April 2008
Product Code: 88132

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Lorsban* 500 EC Insecticide

PURPOSE: Insecticide for control of pests in fruit and other situations

COMPANY IDENTIFICATION:

Dow AgroSciences Australia Ltd.
ABN 24 003 771 659
Level 5, 20 Rodborough Road,
Frenchs Forest NSW 2086

Customer Service Toll Free Number:
1800 700 096

(Mon-Fri, 8am–5pm EST)

Emergency Telephone Number:
1800 033 882

(24 hours) (EMERGENCIES ONLY)

Transport Emergency Only Dial 000

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Classified as hazardous according to the criteria of NOHSC

Classified as Dangerous Goods for transport
Combustible C1

RISK PHRASES:

R24/25: Toxic in contact with the skin and if swallowed.

R65: Harmful: may cause lung damage if swallowed

R36/38: Irritating to eyes and skin.

R33: Danger of cumulative effects.

R50/53: Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

SAFETY PHRASES:

- S1/2: Keep locked up and out of the reach of children
- S13: Keep away from food, drink and animal feeding stuffs.
- S20/21: When using the do not eat, drink or smoke.
- S16: Keep away from sources of ignition – No smoking.
- S3/9/49: Keep only in the original container in a cool, well ventilated place.
- S23: Do not breathe spraying
- S36/37/39: Wear suitable protective clothing and gloves and eye/face protection.
- S28: After contact with skin, wash immediately with plenty of water.
- S62: If swallowed, do not induce vomiting: seek medical advice immediately and show the container or label.
- S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S61: Avoid release to the environment. Refer to special instructions.
- S60: This material and its container must be disposed of as hazardous waste.
- S29: Do not empty into drains.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Ingredient	CAS #	Content
Chlorpyrifos	002921-88-2	46.3% w/w
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	30 – 50%
Balance – Ingredients not contributing to hazards		<20%

4. FIRST AID:

Consult the Poisons Information Centre (131126) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

EYE: Flush eyes thoroughly with water for several minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Wash skin with plenty of water.

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HAZCHEM: 2X

INGESTION: Do not induce vomiting unless instructed to do so by the Poisons Information Centre or at a doctor. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: Atropine, only 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.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 67°C

COMBUSTIBLE: C1

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

AUTO-IGNITION TEMPERATURE: >400°C

EXTINGUISHING MEDIA: Foam, water, carbon dioxide, or dry chemical. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.

FIRE AND EXPLOSION HAZARDS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to sulfur oxides, phosphorus compounds, nitrogen oxides, hydrogen chloride, carbon monoxide, and carbon dioxide. Container may vent and/or rupture due to fire.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (including fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

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6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Extinguish all sources of ignition. Do not touch or walk through spilled material. Wear a face shield or goggles, overalls buttoned to neck and wrist, chemical resistant gloves and boots. Stop leak when safe to do so. Dike area and prevent entry into waterways, and drains or coming into contact with HSNO Class 1, 2, 3.2, 4 or 5 substances. **Small spills/leaks:** Absorb with material such as sand, soil or sawdust. Collect spilled product and place in sealable container for disposal. Spill residues may be cleaned using water and detergent. Contain and absorb wash water for disposal. Absorb and collect washings and place in the same sealable container for disposal. Absorb and collect washings and place in the same sealable container for disposal. Seek advice from the SDS, product label or Dow AgroSciences regarding disposal. **Large spills** Report large spills to Dow AgroSciences Emergency Services at Services at 1800-033-882.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Keep out of reach of children. Harmful if swallowed, inhaled, or absorbed through skin. Causes eye and skin irritation. Avoid contact with eyes, skin and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

STORAGE: Store in tightly closed original container in a cool, dry well-ventilated area out of direct sunlight when not in use. Do not store with food, feedstuffs, fertilizers and seeds. See product label for further handling/storage precautions relative to the end use of this product. Reduce stacking height where local conditions can affect packaging strength.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES:

Chlorpyrifos: NOHSC TWA 10mg/M³ Skin. ACGIH TLV and OSHA PEL are 0.2 mg/M³, Skin. ACGIH classification is A4.

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure that measures to minimize dermal exposures should be considered.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Use gloves chemically resistant to this material. Elbow-length PVC, butyl rubber or rubber gloves are suitable.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved particulate respirator. The following should be effective types of air-purifying respirators: particulate filter.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

CORROSIVENESS: Not corrosive

BOILING POINT: 183°C (solvent)

APPEARANCE: Liquid

COLOR: Tan

ODOR: Characteristic

SPECIFIC GRAVITY: 1075 g/ml @ 20°C

SOLUBILITY IN WATER: Emulsifiable

VAPOR PRESSURE: 26 mmHg @ 38°C (solvent);
187 x 10⁻⁵ mmHg @ 25° (chlorpyrifos)

10. STABILITY AND REACTIVITY:

STABILITY: Unstable at elevated temperatures. Avoid temperatures above 70°C. Product can decompose at elevated temperatures.

INCOMPATIBILITY: (specific materials to avoid) Avoid contact with oxidizing materials, acids, and bases.

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HAZARDOUS DECOMPOSITION: Hazardous decomposition products depend upon temperature, air supply, and the presence of other materials. Hazardous decomposition products may include and are not limited to hydrogen chloride, organic sulfides, and sulfur dioxide.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate eye irritation.

SKIN: Prolonged exposure not likely to cause significant skin irritation. Prolonged skin contact may result in absorption of harmful amounts. The LD₅₀ for skin absorption in rabbits is >2000 mg/kg.

INGESTION: For a 1% dilution: very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD₅₀ for rats is >5000 mg/kg. For the granules: Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. The oral LD₅₀ for rats is 230 - 310.

INHALATION: No adverse effects are anticipated from single exposure to dust. At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause adverse effects. In tests to determine the acute LC₅₀, no deaths occurred in rats exposed for 4 hours to vapors generated by passing air through heated, molten chlorpyrifos; the nominal concentration for chlorpyrifos was 200 mg/m³ for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:

Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, 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.

CANCER INFORMATION: Chlorpyrifos did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals.

REPRODUCTIVE EFFECTS: Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

MUTAGENICITY: Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal genetic toxicity potential.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:

MOVEMENT & PARTITIONING:

Based largely or completely on information for chlorpyrifos.

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Expected to be relatively immobile in soil (Koc >5000).

DEGRADATION & PERSISTENCE:

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.

ECOTOXICOLOGY:

Based largely or completely on information for chlorpyrifos.

Material is very highly toxic to aquatic organisms on an acute basis (LC₅₀ or EC₅₀ <0.1 mg/L in most sensitive species tested).

Material is moderately toxic to birds on a dietary basis (LC₅₀ is between 501 and 1000 ppm).

Material is moderately toxic to birds on an acute basis (LD₅₀ is between 51 and 500 mg/kg).

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13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with local or area regulations. The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

DANGEROUS GOODS CLASSIFICATION

UN No: 3018

Class: 6.1

Packing group: III

SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CHLORPYRIFOS)/MARINE POLLUTANT

Dow AgroSciences does not recommend transport by air.

15. REGULATORY INFORMATION:

APVMA APPROVAL NUMBER: 32887

POISON SCHEDULE: S6

16. OTHER INFORMATION:

Glossary

ACGIH: American Conference of Governmental Industrial Hygienists.

AIHA WEEL: American Industrial Hygiene Association's Workplace Environmental Exposure Level.

ASCC: Australian Safety and Compensation Council.

BCF: Bioconcentration Factor - a measure for the characterization of the accumulation of a chemical in an organism. It is defined as the concentration of a chemical in an organism (plants, microorganisms, animals) divided by the concentration in a reference compartment (e.g. food, surrounding water).

Dow AgroSciences Industrial Hygiene Guideline: An internal company standard based on an 8 hour TWA.

EC₅₀: median effective concentration. Statistically derived concentration of a substance in an environmental medium expected to produce a certain effect in 50% of test organisms in a given population under a defined set of conditions.

Explosive Limits - The range of concentrations (% by volume in air) of a flammable gas or vapour that can result in an explosion for ignition in a confined space.

K_{oc} - the organic carbon partition coefficient (mL soil water /g organic carbon).

LC₅₀ - Lethal Concentration 50%. A concentration of chemical in air or water that will kill 50% of the test organisms.

LD₅₀ - Lethal Dose-50%. The dose of a chemical that will kill 50% of the test animals receiving it.

NOHSC: National Occupational Health and Safety Commission of Australia now the Office of the Australian Safety and Compensation Council.

OSHA: American Occupational Safety and Health Administration.

PEL: Permissible Exposure Level, a maximum allowable exposure level by law.

pH - Measure of how acidic or alkaline a material is using a 1 - 14 scale. pH 1 is strongly acidic and pH 14 strongly alkaline.

Polymerisation - a chemical reaction in which small molecules (monomers) combine to form much larger molecules (polymers). A hazardous polymerisation reaction is one that occurs at a fast rate and releases large amounts of energy.

P_{ow} - The octanol-water partition coefficient is the ratio of the concentration of a chemical in octanol and in water at equilibrium and at a specified temperature. Octanol is an organic solvent that is used as a surrogate for natural organic matter. This parameter is used in many environmental studies to help determine the fate of chemicals in the environment.

STEL: Short-Term Exposure Limit. A term used to indicate the maximum average concentration allowed for a continuous 15 minute exposure period.

TLV: Threshold Limit Value, an exposure limit set by a competent authority

TWA - Time Weighted Average. The average concentration of a chemical in air over the total exposure time - usually an 8 hour work day.

References

AS/NZS 1715-1994 Selection Use and Maintenance of Respiratory Protective Devices.
AS/NZS 1716 - 1994 Respiratory protective devices.

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Australian Dangerous Goods Code
NOHSC Hazardous Substances Information System.

VERSION CONTROL

Replaces version dated: 4 May 2007

Sections amended: 5

Product Number: GF-176

**FOR FURTHER PRODUCT INFORMATION CALL DOW
AGROSCIENCES CUSTOMER SERVICE
REPRESENTATIVES TOLL FREE 1800 700 096 DURING
BUSINESS HOURS.**

This MSDS has been compiled using publicly available information, information provided by suppliers of ingredients used in the product and internal studies on the product and/or its ingredients.

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 BASED ON PUBLICLY AVAILABLE AND INTERNALLY AVAILABLE INFORMATION. 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 FUTURE INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY. THE RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

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