

UNIVERSAL PHOSDRIN® 500 SL

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: PHOSDRIN® 500 SL
 Insecticide; Acaricide
UN No.: 3018
Supplier: Universal Crop Protection (Pty) Ltd.
Co. Reg. No.: 1983/008184/07
 PO Box 801,
 Kempton Park, 1620, South Africa
Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone numbers:
24 Hr Transport / Spill emergency no:
 (Hazcall24) +27 86 044 4411
 (Client: Villa Crop Protection)
 Griffon Poison Information Centre +27 82 446 8946
 (Client: Villa Crop Protection)
Poisoning Emergency telephone numbers:
 Griffon Poison Information Centre +27 82 446 8946
 Poisons Information Centre +27 861 555 777

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: Mevinphos (BSI, E-ISO, ESA, F-ISO, JMAF)
Chemical Name: 2-methoxycarbonyl-1-methylvinyl dimethyl phosphate (IUPAC)
CAS No.: [26718-65-0]
Chemical Family: Organophosphate
Chemical Formula: C₇H₁₃O₆P (Mol. wt.: 224.1)
Use: A systemic contact and stomach insecticide with fumigant properties for control of insects.
Formulation: Mevinphos: 500 g/l
 Soluble concentrate (Liquid)
Hazardous Ingredient: Mevinphos
SYMBOLS: T+, N
RISK-PHRASE(S): R26/27/28, R36/37/38, R39/23/24/25, R50

3. HAZARD IDENTIFICATION

Toxicity class: WHO Ia; EPA I
ADI: 0.0015 mg/kg
MEVINPHOS (PHOSDRIN® 500 SL) IS A SEVERE CHOLINESTERASE INHIBITOR. A PHYSICIAN SHOULD BE CONTACTED IN ALL CASES OF EXPOSURE TO MEVINPHOS AND ITS FORMULATIONS. WEAR PROTECTIVE EQUIPMENT WHEN TREATING SOMEONE EXPOSED TO

MEVINPHOS TO PREVENT EXPOSURE OF THE RESCUER. IT IS HIGHLY TOXIC. CONTACT WITH SKIN, INHALATION OF SPRAY, OR SWALLOWING MAY BE FATAL.

Ingestion: Highly toxic by ingestion.
Inhalation: Highly toxic by inhalation depends on volatility of compound.
Skin contact: Highly toxic, due to possible absorption. Moderate irritating to skin.
Eye contact: Highly toxic. Severe irritating to eyes.

Fire and explosion hazard:

Product is non flammable.
Likely routes of exposure: This product may produce acute cholinesterase depression if it is ingested, inhaled, or absorbed through the eyes or the skin. Extreme acute cholinesterase depression may be fatal.

SIGNS OF ACUTE OVEREXPOSURE: Acute cholinesterase depression may be evidenced by headache, nausea, vomiting, diarrhoea, abdominal cramps, excessive sweating, salivation and tearing, constricted pupils, blurred vision, tightness in chest, weakness, muscle twitching and confusion; in extreme cases, unconsciousness, convulsions, severe respiratory depression and death may occur. In addition, exposure to the solvent may cause severe eye irritation.

SIGNS OF CHRONIC OVEREXPOSURE: Repeated exposures to small doses of Mevinphos and other organophosphates may lower the cholinesterase to levels where the above symptoms of acute overexposure are observed.

4. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, faintness, fatigue, and tightness of the chest, anxiety, blurred vision, pupillary constriction and muscle twitching. Depending on severity of poisoning these symptoms become worse with the onset of vomiting, abdominal pain, diarrhoea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects that may lead to misdiagnosis of acute alcoholism. In extreme cases unconsciousness, convulsions, severe respiratory depression and death may occur.

FIRST AID:

The airway should be kept clear to maintain respiration, particularly when the patient is unconscious or has vomited. The mouth and pharynx should be cleared and dentures removed. The jaw should be supported and the patient placed in a face down position with the head down and turned to one side, with the tongue drawn forward.

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First aid should include, if necessary, mouth-to-nose respiration, cardiac massage and avoidance of injury in patients with trauma.

Inhalation:

Remove victim to fresh air. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration. If breathing is difficult, give oxygen. Highly toxic by inhalation depends on volatility of compound. Treat symptomatically and supportively. **Seek medical advice immediately.**

Skin contact:

Immediately flush all affected areas with large amounts of clear water for at least 15 minutes. Remove contaminated clothing. Do not attempt to neutralize with chemical agents. Wash clothing before reuse. Highly toxic, due to possible absorption. **Contact a physician immediately.** Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

Eye contact:

Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. **Contact a physician immediately.** If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

Ingestion:

Induce vomiting immediately by giving two glasses of water and giving Ipecac according to directions on the bottle or by sticking one's finger down the patient throat. Have the patient sit up while vomiting to help prevent aspiration of the vomitus. Never give anything by mouth to an unconscious or convulsing person. **Take the patient immediately to the nearest physician.**

NOTE TO PHYSICIANS:

THIS IS A HIGHLY TOXIC ORGANOPHOSPHATE (OP) INSECTICIDE.

Do not wait for laboratory confirmation to treat patients with strong clinical evidence of poisoning.

Do Not handle the patient without the following protective equipment in place: chemical resistant gloves and apron (preferably PVC). Remove contaminated clothing and do not reuse without thorough cleaning with detergent and hot water. Dispose of heavily contaminated clothing, including shoes, as a hazardous waste.

Establish airway and oxygenation. IV Atropine sulfate is the antidote of choice against parasympathetic nervous stimulation. If there are signs of parasympathetic stimulation, Atropine sulfate should be injected at 10 minute intervals in doses of 1 to 2 milligrams until complete atropinization has occurred. Pralidoxime chloride (2-PAM chloride) may also be used as an effective antidote in addition to and while maintaining full

atropinization. In adults, an initial dose of 1 gram of 2-PAM should be injected, preferably as an infusion, in 250 cc of saline over a 15 to 20 minute period. If this is not practical, 2-PAM may be administered slowly by intravenous injection as a 5 % solution in water over not less than 2 minutes. After about an hour, a second dose of 1 gram of 2-PAM will be indicated if muscle weakness has not been relieved. For infants and children, the dose of 2-PAM is 0.25 grams.

NOTE

Avoid morphine, aminophylline, phenothiazine, reserpine, furosemide and ethacrynic acid. Clear chest by postural drainage. Oxygen administration may be necessary. Observe patient continuously for 48 hours. Repeated exposure to cholinesterase inhibitors may without warning cause prolonged susceptibility to very small doses of any cholinesterase inhibitor.

5. FIRE FIGHTING MEASURES

Flammable properties:

Non-flammable.

Flash point: 93 °C.

Extinguishing agents:

Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray as a fog can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Contain water used for fire-fighting for later disposal.

Avoid the accumulation of polluted run-off from the site.

Fire fighting:

Remove spectators from surrounding area. Remove container from fire area if possible without risk. Eliminate all ignition sources in immediate area. Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Avoid inhaling hazardous vapours. Keep upwind.

Special Hazards:

This product will emit toxic fumes when burned, including carbon monoxide. May produce irritating or poisonous mists or other products of combustion.

Personal protective equipment:

Fire fighters and others that may be exposed should wear full protective impervious clothing, including gloves and eye protection, and self-contained breathing apparatus. Contact with the fumes and vapours should be avoided by staying upwind.

Clean all clothing before re-use. Severely contaminated clothing cannot be adequately decontaminated, and must be disposed as a hazardous waste. Shower with soap and water after contact with this product.

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6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Do not inhale fumes. Avoid contact with skin, eyes or clothes. Ventilate area of spill or leak, especially confined areas. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill:

Earth all equipment used when handling the product. Do not touch or walk through spilled material. Stop leak if possible without risk. Avoid runoff of product into sewers, water systems, basements or confined areas as it may cause fire/explosion. Vapour-suppressing foam could be used to reduce vapours. Thoroughly wash body areas, which come into contact with the product.

For **small spills**, soak up sand or suitable non-combustible absorbent material, place into containers for subsequent disposal. Use clean, non-sparking tools to collect absorbed material.

For **large spills** contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Operator should not be alone during handling and application of product. Remove sources of naked flame or sparks. Harmful by inhalation or if swallowed. Avoid contact with eyes and skin and inhalation of fumes. Avoid exposure to spray. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Store in its original container in isolated, dry, cool (avoid temperatures above 32 °C) and well-ventilated area. Avoid cross contamination with other pesticides and fertilisers. Keep under lock and key out of reach of unauthorised persons, children and animals. Store away from incompatible substances. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

Keep away from naked flames and other sources of ignition.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering control measures:

It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Only spark-resistant equipment should be used. Comply with occupational safety, environmental, fire and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal equipment including approved respiratory protection.

Respirator:

An approved full-face air-purifying respirator, equipped with organic vapour cartridges or canisters, suitable for protection from mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing (long sleeved cotton overalls, apron, rubber boots, face shield and hat or cap) and equipment to prevent skin contact with the substance.

Gloves:

Employee must wear appropriate chemical resistant protective gloves (PVC or neoprene gloves) to prevent contact with this substance.

Eye protection:

Employee must wear splash-proof safety goggles and face-shield to prevent contact with this substance.

Emergency eyewash: Where there is any possibility that an employee's eyes may be exposed to this substance; the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Clear red coloured liquid with a solvent odour.

Flammability:

Non Flammable.

Flash point:

93°C

Corrosiveness:

Corrosive to steel.

Specific gravity:

1.1026 ± 0.05 g/ml @ 20 °C.

Solubility in water:

Forms an emulsion in water.

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10. STABILITY AND REACTIVITY

Storage stability:

Stable for up to 2 years under normal warehouse and field conditions. Product hydrolysed rapidly in aqueous alkaline solutions. Avoid heat and sources of ignition.

Stability:

PHOSDRIN® 500 SL decomposes at elevated temperatures and is hydrolysed in aqueous solution.

Incompatibility:

The product is compatible with most other common pesticides.

The product is incompatible with strong oxidizers, strong acids, and alkaline materials such as Bordeaux mixture or Lime Sulphur.

Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Do not store in plain mild steel, tinsplate or plastic containers. May be stored in glass, approved lacquer-lined steel or aluminium (99 % purity).

Hazardous decomposition:

Product undergoes decomposition at high temperatures and will cause emission of acrid smoke and toxic fumes of phosphorous oxides and carbon oxides.

Polymerisation:

This product will not polymerise.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ rats:

Technical: 2.8 (2.3 to 3.5) mg/kg.

Formulation calculated: 6 mg/kg.

Acute dermal LD₅₀ rabbits:

Technical (skin): 54 (51 to 60) mg/kg.

Formulation calculated: 32 mg/kg.

Inhalation LC₅₀ rats:

Technical (1 hour): 9.8 (7.3 to 12) mg/m³ 1 hour whole body.

Acute skin irritation:

This product is classified as highly toxic and a mild irritant.

Acute eye irritation:

This product is classified as highly toxic and irritant to the eyes.

Dermal sensitisation:

This product is a non-sensitising substance to guinea pigs.

OTHER POTENTIAL HEALTH EFFECTS: Laboratory testing of the active ingredient, **Mevinphos**, has shown no evidence of carcinogenicity, no evidence of teratogenicity in laboratory animals, no evidence of reproductive toxicity in rats, and no evidence of *in vivo* mutagenicity to mammalian assay systems.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing conditions which lower cholinesterase levels increase vulnerability to

cholinesterase depression. These include: (for plasma) genetic cholinesterase deficiency; advanced liver disease; chronic alcoholism; malnutrition; dermatomyositis; existing toxicity from exposure to carbon disulfide; benzalkonium salts, organic mercury compounds, ciguatoxins or solanines; and (for RBC) hemolytic anemias.

12. ECOLOGICAL INFORMATION

Degradability: (Technical material)

Readily biodegradable. Hydrolysed in aqueous solution. This product is an organophosphate insecticide that is widely applied to soil to control insect pests. The pathway of degradation in soil involves both chemical and microbial processes. Environmental factors can greatly influence the degradation rate in soil; the most important being moisture, pH, organic content, and pesticide formulation.

This product in formulation can be classified as non-persistent and does not accumulate. No harmful residue remains in the soil.

Accumulation:

In mammals, **Mevinphos** is eliminated within 3 to 4 days in the form of metabolites in the urine and faeces.

In plants **Mevinphos** is hydrolysed rapidly to less toxic products, including phosphoric acid dimethyl ester and phosphoric acid.

ECOTOXICOLOGY:

Toxic to birds, bees, wildlife and highly toxic to fish.

Birds:

Oral LD ₅₀ :	mallard ducks:	4.63 mg/kg
	pheasants:	1.37 mg/kg

Fish:

LC ₅₀ (48 hours):	rainbow trout:	0.017 mg/l
	bluegill sunfish:	0.037 mg/l

Daphnia:

Toxic to *Daphnia magna*.

Bees:

LD ₅₀ :	0.027 µg/bee
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13. DISPOSAL CONSIDERATION

Pesticide disposal:

Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed should be disposed of in a landfill approved for pesticide disposal. Do not contaminate rivers, dams or any other water sources with the product or used containers. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

Package product wastes:

Emptied containers retain vapour and product residues. Observe all labelled safeguards. **TRIPLE RINSE** empty

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containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of a third of that of the container. Add the rinsing to the contents of the spray tank before destroying the container.

Destroy the emptied containers by perforation and flattening. Bury in an approved dumpsite. Do not re-use the empty container for any other purpose.

Comply with any local legislation applying to disposal.

S 27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and non-abrasive soap.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions / Safety data sheets.

14. TRANSPORT INFORMATION

UN No.: 3018
Road Transport ADR/IRD:
 Class: 6.1
 Packing group: I
 Shipping name: Organophosphorus pesticide, liquid, toxic (**Mevinphos**)

Air Transport ICAO/IATA:
 Class: 6.1
 Packing group: I
 Shipping name: Organophosphorus pesticide, liquid, toxic (**Mevinphos**)

Maritime Transport IMDG/IMO:
 Class: 6.1
 Packing group: I
 Shipping name: Organophosphorus pesticide, liquid, toxic, (**Mevinphos**)

MARINE POLLUTANT

15. REGULATORY INFORMATION

Symbol: T+, N
Indication of Danger: Very toxic substance, Environmentally dangerous substance

Risk phrases:
R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, when in contact with skin and if swallowed.
R 50 Very toxic to aquatic organisms.

Safety phrases:
S 1/2 Keep locked up and out of reach of children.
S 3/9/14 Keep in a cool, well-ventilated place away from open flames and sparks.
S 23 Do not breathe fumes or vapour.
S 24/25 Avoid contact with skin and eyes.

16. OTHER INFORMATION

Packing and Labelling
 Packed in 5, 10, 20 & 25 litres fluorinated plastic containers and labelled according to the South African regulations and guidelines.

Disclaimer:
 The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.
 All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

END OF DOCUMENT

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For detailed information on revisions, contact the Registration holder.