

VILLA NEMACUR® 400 EC

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: NEMACUR® 400 EC
Other identifier: Fenamiphos 400 EC
Recommended use: Insecticide
Restrictions on use: Agriculture

Supplier: Villa Crop Protection (Pty) Ltd.
 PO Box 10413
 Aston Manor, 1630, South Africa

Telephone: (011) 3962233
Fax: (011) 3964666
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. HAZARD IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	Hazard categories	H-statements
Health		
Oral	Acute Tox. 2	H300
Dermal	Acute Tox. 2	H310
Inhalation	Acute Tox. 2 Asp. 1	H330 H304
Environment		
Aquatic acute	Aquatic acute 1	H400
Aquatic chronic	Aquatic chronic 1	H410

The most important adverse effects:

Physiochemical effects:

None known.

Human health effects:

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.

If swallowed and aspirated into the lungs, chemical pneumonia can occur.

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.

Label elements:



Signal word: Danger

Hazard statements:

H300: Fatal if swallowed.
 H304: May be fatal if swallowed and enters airways.
 H310: Fatal in contact with skin.
 H330: Fatal if inhaled.
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P260: Do not breathe dust, fume, gas, mist, vapours, or spray.
 P262: Do not get in eyes, on skin, or on clothing.
 P264: Wash hands and face thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P271: Use only outdoors or in a well-ventilated area.
 P273: Avoid release into the environment.
 P280: Wear protective gloves/protective clothing.
 P284: In case of inadequate ventilation wear respiratory protection.
 P301+P310: IF SWALLOWED: Immediately call a POISON CENTER.
 P302+P352: IF ON SKIN: Wash with plenty of water and non-abrasive soap.
 P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P316: Get emergency medical help immediately.
 P330: Rinse mouth.
 P331: Do NOT induce vomiting.
 P361+P364: Take off immediately all contaminated clothing and wash before reuse.
 P391: Collect spillage.
 P403+P233: Store in a well-ventilated place. Keep container tightly closed.
 P405: Store locked up.
 P501: Dispose of content/container to suitable landfill in accordance with local regulations.

Other hazards:

None known.

Toxicity:

Classification according to GHS: Category 2

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3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture
 Composition:

Chemical name	CAS	Conc. m/m (%)	Classification EC 1272/2008
Fenamiphos	22224-92-6	40 %	Acute Tox 2 (H300)
			Acute Tox 2 (H310)
			Eye Irrit. 2 (H319)
			Acute Tox 2 (H330)
			Aquatic Acute 1 (H400)
			Aquatic Chronic 1 (H410)
Heavy aromatic solvent	64742-94-5	< 24 %	Asp. Tox. 1 (H304)

4. FIRST AID MEASURES

This compound inhibits cholinesterase enzyme activity in the nervous tissue. It is highly toxic. Contact with skin, inhalation of spray, or swallowing may be fatal. Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure. Immediately consult a doctor.

Inhalation: Immediately remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. If breathing has stopped, perform artificial respiration and administer oxygen. Avoid mouth-to-mouth resuscitation. The airway should be kept clear to maintain respiration, particularly when the patient is unconscious or has vomited. **Seek medical advice immediately.**

Skin: Remove contaminated clothing, shoes and leather goods immediately. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap or mild detergent and large amounts of water until no evidence of chemical remains (approximately 15 to 20 minutes). Persons who become sensitised may require specialised medical management with anti-inflammatory agents. **Seek medical advice immediately.**

Eye: Flush eyes immediately with large amounts of gently flowing cold water or normal saline solution, occasionally lifting upper and lower lids, until no evidence of chemical remains (approximately 15 to 20 minutes). **Seek medical advice immediately.**

Ingestion: Have victim rinse mouth thoroughly with water. **Do not induce vomiting, due to the aromatic solvent. Seek medical advice immediately.** If the person is alert and respiration is not depressed, give large quantity of water to drink. Do not give saltwater or any other emetic. Never give anything by mouth to an unconscious person. Establish and maintain airway. Treat respiratory difficulty with artificial respiration and oxygen. Qualified medical personnel must perform administration of oxygen and lavage.

Advice to physician: This product contains **Fenamiphos**, a cholinesterase inhibiting organophosphate nematicide/insecticide. Atropine and 2-PAM are antidotal for most organophosphate insecticides. Administer in large, therapeutic doses. Patients with organophosphate poisoning require amounts of atropine far in excess of doses usually employed in medical practice. The therapeutic objective is to achieve atropinisation, as evidenced by dilation of the pupils, drying secretion, pulse rate of over 120/minute, and flushing skin. Over dosage with atropine is rarely serious, but under dosage may be fatal in poisoning with organophosphorous compounds.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant. To prevent gastrointestinal absorption in unconscious that have swallowed this product, perform stomach lavage using bicarbonate solution and activated charcoal.

Important Note: Because of their respiratory-depressant effects, **morphine** and similar drugs are **contra-indicated** for patients poisoned with organophosphorous compounds. **Avoid aminoglycosides and succinylcholine**, which have a blocking effect on the neuromuscular junction. **Phenothiazines, reserpine and theophylline** are **contraindicated** in organophosphorous poisoning.

Before antidote is administered, either clear symptoms of poisoning have to be present or the cholinesterase activity is inhibited to below 30% of normal.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use water spray, carbon dioxide (CO₂), foam and sand to extinguish fires.

Unsuitable Extinguishing Media: High volume water jet. Use a water jet only to cool heated containers.

Specific hazards: In the event of fire the following toxic gasses may be released: Hydrogen cyanide (hydrocyanic acid), carbon monoxide (CO), oxides of phosphorus, sulphur oxides and nitrogen oxides (NOx).

Special fire-fighting procedures: Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Remain upwind of fire. Avoid inhaling

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hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal.

Personal protective equipment: Wear NIOSH / MSHA approved self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Do not inhale fumes. Avoid contact with skin, eyes or clothes. Ventilate area of spill or leak, especially confined areas.

Protective equipment: Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

Emergency procedures: Alert firefighting personnel, evacuate unprotected personnel and animals.

Environmental Precautions: Prevent spilled product from entering sewers, waterways or ground water. 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.

Methods and Materials for Containment: Contain spill product by diking area with sand or earth.

Methods and Materials for Clean-up: Cover contained spill with an inert absorbent material such as sand, vermiculite, earth or other appropriate material. Vacuum, scoop, or sweep up material and place the material into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilt material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilt material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations. See section 13 for disposal considerations.

7. HANDLING AND STORAGE

Handling:

Precautions for safe handling: Operator should not be alone during handling and application of product. Remove sources of naked flame or sparks. Very toxic by inhalation or if swallowed. Avoid contact with eyes and skin and inhalation of fumes. Avoid exposure to spray. Use with adequate ventilation. 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.

General occupational hygiene: 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.

Storage:

Conditions for safe 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.

Incompatible substances and mixtures: Refer to product label.

Packaging material: Fluorinated plastic containers.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentration:

NIOSH REL: 0.1 mg/m³ (Up to 10-hour TWA)

AGCIH TLV: 0.05 mg/m³ (inhalable fraction and vapour) (8-hour TWA)

Engineering control measures: It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. 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.

Respiratory protection: 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.

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Hand protection: 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.

Skin and body protection: 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.

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, yellow liquid.

Odour: Aromatic.

Odour threshold: Not available.

pH (1% aqueous dilution): 5.5 to 7.5.

Melting point: Not available.

Freezing Point: Not available.

Boiling Point: Not available.

Flash Point: Not available.

Flammability: Not flammable but combustible.

Upper / lower explosion limits: Not available.

Vapour Pressure (mm Hg): Not available.

Relative Vapour Density: Not available.

Density / Relative density: ca. 1.04 g/cm³ at 20 °C

Solubility: Forms an emulsion in water.

n-octanol / water partition coefficient: Not available.

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity: Not available.

10. STABILITY AND REACTIVITY

Chemical stability: The product is stable for two years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50 °C, preferably below 30 °C, and not for prolonged periods in direct sunlight.

Reactivity: None known.

Possibility of hazardous reactions: None known.

Conditions to avoid: Extreme heat or exposure to flames.

Incompatible materials: The product is incompatible with strong oxidizers and alkaline materials.

Hazardous decomposition: Product undergoes decomposition at high temperatures and will cause emission of acrid smoke and toxic fumes of hydrogen cyanide (hydrocyanic acid), carbon monoxide (CO), oxides of phosphorus, sulphur oxides and nitrogen oxides (NOx).

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: Calculated according to GHS.

Oral LD₅₀ (24h) 14.67 mg/kg (rat)

Dermal LD₅₀ 175.98 mg/kg (rat)

Inhalation LC₅₀ (4h) 0.15 mg/l (rat)

Skin Irritation / Corrosion: Fatal in contact with skin.

Eye Damage / Irritation: Causes serious eye irritation.

Skin Sensitization: Not available.

Respiratory Sensitization: Anticipated to be toxic by ingestion and inhalation.

Reproductive cell mutagenicity: Not available.

Carcinogenicity: Not available.

Reproductive toxicity: Not available.

Specific target organ toxicity – single exposure: Not available.

Specific target organ toxicity – repeated exposure: Not available.

Aspiration hazard: May be fatal if swallowed and enters airways.

Chronic Effects: Not available.

POTENTIAL ADVERSE EFFECTS:

Inhalation: Fatal if inhaled.

Ingestion: Fatal if swallowed. May be fatal if swallowed and enters airways.

Skin: Fatal in contact with skin.

Other information: None known.

12. ECOLOGICAL INFORMATION

This product is very toxic to aquatic life with long lasting effects.

ECOTOXICITY DATA:

Fenamiphos technical material:

Fish:

LC ₅₀ (96 h)	Bluegill sunfish	0.0093 mg/l
	Rainbow trout	0.0721 mg/l
	Sheepshead minnows	0.017 mg/l

Daphnia:

EC ₅₀ (48 h)		0.00106 mg/l
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Algae:

E _c 50 (96 h)	Scenedesmus	11 mg/l
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subspicatus

Birds:

Acute oral LD ₅₀	Bobwhite quail	0.7-1.6 mg/kg
	Mallard ducks	0.9-1.2 mg/kg
Dietary LC ₅₀ (5d)	Mallard ducks	316 mg/kg diet
	Bobwhite quail	38 mg/kg diet

Bees:

LD ₅₀ oral	0.45µg/bee
Contact	0.28 µg/bee

Worms:

LC ₅₀	<i>Eisenia fetida</i>	888 mg/kg soil
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Plants:

Studies in a range of crops, representing fruit, root and tuber crops, leafy crops, oilseeds and pulses, with different kinds of application, all show a similar metabolic pathway in the plants. Fenamiphos is only found directly following application. A short period after treatment, fenamiphos-sulfoxide is the dominant metabolite (*EFSA Sci. Rep.*).

ENVIRONMENTAL EFFECTS

Persistence and degradability: No effect on soil bacteria. Readily degradable in water, degradable on soil surfaces. Duration of activity in soil is c. 4 months. Based on Koc values and leaching studies, fenamiphos can be classified as a compound with low mobility. Soil DT₅₀ (aerobic and anaerobic) is several weeks. The major degradation products are fenamiphos sulfoxide and fenamiphos sulfone and their phenols.

Bio-accumulative potential: Not determined.

Mobility in soil: Not determined. Low mobility.

Other adverse effects: Not determined.

13. DISPOSAL CONSIDERATION

Waste: 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. The product may be taken to a registered waste disposal site or incineration plant.

Container: Emptied containers retain product residues. Do not re-use the empty container for any other purpose. Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed

container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn, or donate the container to any other parties that may use it as a container for food or beverages. Observe all labelled safeguards until container is destroyed.

14. TRANSPORT INFORMATION

UN Number: 3018
Road Transport ADR / ORD:
 Class: 6.1
 Packaging group: I
 UN Proper Shipping Name: Organophosphorus pesticide, liquid, toxic (**Fenamiphos 400g/l**)
Maritime Transport IMDG / IMO:
 Class: 6.1
 Packaging group: I
 UN Proper Shipping Name: Organophosphorus pesticide, liquid, toxic (**Fenamiphos 400g/l**)
Marine pollutant (Y/N): Y
Air Transport IATA / ICAO:
 Class: 6.1
 Packaging group: I
 UN Proper Shipping Name: Organophosphorus pesticide, liquid, toxic (**Fenamiphos 400g/l**)
Special / Environmental Precautions: Wedge drums tightly to avoid movement.
Transport in bulk: Refer to MARPOL 73/78, Annex II and the IBC code.

15. REGULATORY INFORMATION

Safety, health, and environmental regulations / legislation for the mixture:
 OSHA 1993 Regulations for Hazardous Chemical Substances.
Relevant information regarding restrictions: None.
EU regulation: Regulation EC1272/2008 (EU-GHS/CLP).
Other national regulations: None.
Chemical Safety Assessment carried out? No

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.
Other hazard statements, abbreviations, and explanations:

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IATA: International Air Transport Association.
IBC: International Bulk Chemical.
ICAO: International Civil Aviation Organization.
IMDG: International Maritime Dangerous Goods
IMO: International Maritime Organization.
LD₅₀ value: The median lethal dose or the amount of a toxic agent that is sufficient to kill 50 percent of a population within a certain period of time.
TWA: Time-weighted average – The average exposure over a specified period, usually a nominal eight hours.
ST/STEL: Short-term exposure limits.

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. Text of R phrases mentioned in Section 3:

END OF DOCUMENT

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For detailed information on revisions, contact the Registration holder.