

UNIVERSAL FENAMIPHOS 400EC

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: FENAMIPHOS 400EC
 Nematicide
UN No.: 3017
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:

Envirosure. +27 31 205 4918
 (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

Villa Crop Protection Emergency number:

National Safety, Health and Environmental Manager:
 +27 63 698 0668

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: Fenamiphos
Chemical Name: ethyl 4-methylthio-*m*-tolyl isopropylphosphoramidate (IUPAC)
CAS No.: [22224-92-6]
Chemical Family: Organophosphate
Chemical Formula: C₁₃H₂₂NO₃PS (Mol. wt.: 303.4)
Use: A systemic nematicide with contact action for the control of ectoparasitic nematodes. Absorbed by the roots, translocated to the leaves.
Formulation: Fenamiphos: 400 g/l
 Emulsifiable Concentrate (Liquid)
Hazardous Ingredient:

Inert:	concern:	% present:
Fenamiphos	very toxic	40 %
xylene	Irritant, Flammable	± 50 %

SYMBOLS: T+, F, N
RISK-PHASE(S): R11, R26/27/28, R36/38, R50

3. HAZARD IDENTIFICATION

Toxicity class: WHO Ib; EPA (formulation): I

ADI: 0.0003 mg/kg
Main Hazard: 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.
Fire and explosion hazard: Product is **Flammable**.
Likely routes of exposure: Skin and eye contact, ingestion and inhalation.
Ingestion: Highly toxic by ingestion. If large amounts are swallowed and aspiration occurs, chemical pneumonitis may develop. Small amounts of product aspirated into the respiratory system during ingestion or vomiting, due to the solvent in product, may cause mild to severe pulmonary injury.
Inhalation: Highly toxic by inhalation depends on volatility of compound.
Skin contact: Classified as highly toxic and a severe irritant. May cause dermatitis through defatting of tissue.
Eye contact: Severe irritant to the eyes and may cause damage.

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.
 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.
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 denatures 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. First aid should include, if necessary, mouth-to-nose respiration, cardiac massage and avoidance of injury in patients with trauma.
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. **Seek medical advice immediately.**
Skin contact: Remove contaminated clothing, shoes and leather goods immediately. Gently wipe of excess chemical. Wash skin gently and thoroughly with water and

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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 if necessary.

Eye contact: 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). If irritation persists, get medical attention.

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**, an organophosphate nematocide/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.

5. FIRE FIGHTING MEASURES

Flammable properties:

Flammable: Flash point: 24 °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.

Firefighting: 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.

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: Keep out unprotected persons and animals. Do not touch-spilled material; stop leak if you can do it without risk.

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 spills: Use clean, non-sparking tools to collect absorbed material. Soak up with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material.

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Do not flush spilled material into drains. Keep spectators away and upwind.

To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e. organic solvent, detergent bleach or caustic). Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations.

Open burning or dumping of this material is prohibited.

7. HANDLING AND STORAGE REQUIREMENTS

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. 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: A light green coloured liquid with an aromatic solvent odour.

Flammability: Highly flammable.

Flash point: 24 °C.

Specific gravity: 0.99 ± 0.05 g/ml @ 20 °C.

Solubility in water: Forms an emulsion in water.

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: The product is stable. Subjected to hydrolysis and unstable in alkaline media.

Incompatibility: 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 phosphorous oxides, carbon oxides and amines.

Polymerisation: This product will not polymerise.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ rats: Technical: 6 mg/kg.

Formulation calculated: > 10 mg/kg.

Acute dermal LD₅₀ rabbits: Technical: 80 mg/kg.

Formulation calculated: > 80 mg/kg.

Inhalation LC₅₀ rats: Technical: 0.12 mg/l (4hours).

Acute skin irritation: Classified as highly toxic and a severe irritant. May cause dermatitis through defatting of tissue.

Acute eye irritation: Severe irritant to the eyes and may cause damage.

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Carcinogenicity: Studies indicated that **Fenamiphos** is not carcinogenic.

Teratogenicity / Reproductive hazard: Studies suggest that teratogenic effects in humans are unlikely. It is unlikely that **Fenamiphos** would cause reproductive effects in humans.

Mutagenicity: A number of studies evaluating the mutagenic potential of **Fenamiphos** have all shown the compound to be non-mutagenic.

12. ECOLOGICAL INFORMATION

Degradability: **Fenamiphos** is moderately persistent in the soil, with a reported soil half-life of about 50 days. **Fenamiphos** is not strongly absorbed to soils and classified as compound with low mobility. The major degradation products are **Fenamiphos sulfoxide** and **Fenamiphos sulfone** and their phenols.

Readily degradable in water. In neutral solution, half of the initial amount of the compound degraded within 4 hours. **Fenamiphos** disappears quickly from water in acidic and alkaline water, but stable in neutral water when held in the dark.

Accumulation: In mammals, following oral administration, there is a rapid metabolism involving oxidation to sulfoxide and sulfone analogues, followed by subsequent hydrolysis, conjugation and excretion via the urine; some N-dealkylation also occurs.

ECOTOXICOLOGY:

Fenamiphos is not expected to bio-accumulate in aquatic organisms.

Birds: Very highly toxic to birds.

Oral LD ₅₀ :	mallard ducks:	0.9 to 1.2 mg/kg
	Bobwhite quail:	0.7 to 1.6 mg/kg

Fish: Moderately to highly toxic to fish.

LC ₅₀ (96 hours):	rainbow trout:	0.0721 mg/ℓ
	bluegill sunfish:	0.0096 mg/ℓ

Daphnia: Highly toxic to Daphnia.

LC ₅₀ (48 hours):	<i>Daphnia magna</i>	0.0019 mg/ℓ
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Bees: practically non-toxic to honeybees.

LD ₅₀ :		0.027 µg/bee
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Soil organisms:

No effect on soil bacteria.

Algae:

E _r C ₅₀	<i>Scenedesmus subspicatus</i>	11 mg/ℓ
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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 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.

14. TRANSPORT INFORMATION

UN No.: 3017

Road Transport ADR/IRD:

Class:	6.1 + 3.3
Packing group:	I
Shipping name:	Organophosphorus pesticide, liquid, toxic, Flammable (Fenamiphos 400 g/ℓ)

Air Transport ICAO/IATA:

Class:	6.1 + 3.3
Packing group:	I
Shipping name:	Organophosphorus pesticide, liquid, toxic, Flammable (Fenamiphos 400 g/ℓ)

Maritime Transport IMDG/IMO:

Class:	6.1 + 3.3
Packing group:	I
Shipping name:	Organophosphorus pesticide, liquid, toxic, Flammable (Fenamiphos 400 g/ℓ)

MARINE POLLUTANT

15. REGULATORY INFORMATION

Symbol: T+, F, N

Indication of Danger: Very toxic substance, **Flammable**, Environmentally dangerous substance

Risk phrases:

R 11	Highly flammable
R26/27/28	Very toxic by inhalation, in contact with skin and if swallow.
R 36/38	Irritating to eyes and skin.
R 50	Very toxic to aquatic organisms.

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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.
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.

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

Compiled: November 2004

Reviewed: March 2019

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Next revision: March 2024

For detailed information on revisions, contact the Registration holder.