

VILLA METHIDATHION 420 EC

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: METHIDATHION 420 EC
 Insecticide, Acaracide

UN No. 3017

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:

Bateleur: +27 86 199 9071

(Client: Villa Crop Protection)

Poisoning:

Griffon Poison Information Centre +27 82 446 8946

Western Cape Poisons +27 861 555 777

Tygerberg Hospital +27 21 931 6129

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: Methidathion
Chemical Name: S-2,3-dihydro-5-methoxy-2-oxo-1,3,4-thiadiazol-3-ylmethyl O,O-dimethyl phosphorodithioate (IUPAC)

CAS No.: [950-37-8]

Chemical Family: Organophosphate

Chemical Formula: C₆H₁₁N₂O₄PS₃ (Mol. wt.: 302.3)

Use: A non-systemic contact and stomach insecticide and acaricide.

Formulation: Methidathion: 420 g/l
 Emulsifiable Concentrate (Liquid)

Hazardous Ingredient: Methidathion 42 %
 Xylene 50 %

SYMBOLS: T, F

RISK-PHRASE(S): R10, R26/27/28, R36/38, R50,

3. HAZARD IDENTIFICATION

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.

Ingestion: 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: Toxic by inhalation. Irritating to respiratory system.

Skin contact: Toxic, due to possible absorption. Irritating to skin.

Eye contact: Toxic. Irritating to eyes.

4. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. 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.

The product contains solvent that may cause chemical pneumonitis if aspirated into lungs. Watch for delayed onset of pulmonary.

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: Remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. Supply oxygen if necessary. Treat symptomatically and supportively. **Seek medical advice immediately.**

Skin contact: Remove contaminated clothing, shoes and leather goods. Gently wipe of excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

Eye contact: Immediately flush eyes with gently flowing cold water or saline solution for 20 minutes, holding the eyelid(s) open. **Seek medical attention immediately.**

Ingestion: Have victim rinse mouth thoroughly with water. **Seek medical advice immediately. Do not induce vomiting.** Do not give saltwater or any other emetic.

Advice to physician: Atropine must be administered as early as possible and adequately enough to achieve atropinisation, as evidenced by dilation of the pupils, drying secretion, pulse rate of over 120/minute, and flushing skin. To prevent gastrointestinal absorption in unconscious persons who have swallowed this product, perform stomach lavage using bicarbonate solution and activated charcoal. In **less severe cases** begin with 2 mg atropine intravenously for adults or 0.05 mg atropine/kg body weight intravenously for children under 12 years of age and repeat administration of the drug at 15 to 30 minute

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intervals. In **severe cases** inject as early as possible IV, atropine sulphate 2 to 4 mg/kg body weight (for adults) (0,04 to 0,08 mg/kg body weight for children) and repeat at 2 mg for adults (0,04 mg/kg for children) every 3 to 10 minutes until adequately atropinised. A total atropine dose of 20 to 80 mg in the first hour may be necessary, with repeated drug administrations at 3 to 10 minute intervals. When signs of atropinisation appear, the dose and frequency of administration should be reduced to a schedule that will maintain full atropinisation for at least 24 hours. Overdosage with atropine is rarely serious, but underdosage may be fatal in poisoning with organophosphorous compounds.

In **any severe progressive case** of poisoning a cholinesterase reactivator e.g. pralidoxime (2PAM), if available, should be administered, preferably within 8h after intoxication. An average dose is 1 g for an adult (up to 50 mg/kg for children), usually given half as a single intramuscular or intravenous injection and the other half as an intravenous infusion with glucose and or saline. In severe cases this treatment may be repeated in 1 to 2 hours, then at 10 to 12 hour intervals if needed, but not beyond 24 hours, or 48 hours at the most. Pralidoxime should be administered very slowly. If respiration is depressed during or after pralidoxime injection, pulmonary ventilation should be assisted mechanically. Toxogonin is a more recent cholinesterase reactivator. It can be administered instead of 2PAM at a dose of 250 mg intramuscularly for adults (4 to 8 mg/kg for children) and, if necessary, repeated after 1 to 2 hours.

Diazepam should be included in the therapy of severe cases and whenever convulsions appear. Doses of 5 to 10 mg for adults (2 to 5 mg for children) can be administered intravenously or subcutaneously or per rectum, and repeated as required.

NB: Because of their respiratory-depressant effects, morphine and similar drugs are contraindicated 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: 40 °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. Produce irritating or poisonous mists or other products of combustion. Combustion product is sulphur dioxide.

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: 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. 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. Do not get water inside containers.

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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: A clear liquid with an aromatic solvent odour.

Flammability: Flammable.

Flash point: 40 °C

Specific gravity: 1,059 ± 0.05 g/ml @ 20 °C.

Solubility in water: Forms an emulsion in water.

pH: 3 to 6 in % aqueous dilution.

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: Stable.

Incompatibility: The product is compatible with **Mancozeb**. The product is incompatible with oils, zinc oxide, calcium arsenate, **Benomyl** plus oil, lime sulphur and Bordeaux mixture. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ rats: *Technical:* 25 to 45 mg/kg.

Formulation calculated: 59 mg/kg.

Acute dermal LD₅₀ rabbits: *Technical:* 85 to 94 mg/kg.

Formulation calculated: 202 mg/kg.

Inhalation LC₅₀ rats: *Technical (4 hour):* 3.6 mg/m³.

Acute skin irritation: This product is classified as toxic and a mild irritant.

Acute eye irritation: This product is classified as toxic and irritant to the eyes.

Carcinogenicity: Carcinogenic potential is unclear. No human information available.

Teratogenicity / Reproductive hazard: Reproductive effects in humans as a result of **Methidathion** exposure are unlikely under normal circumstances. **Methidathion** is unlikely to pose a teratogenic development risk to humans.

Mutagenicity: Studies indicate that the product is not mutagenic. **ADI:** 0.001 mg/kg.

12. ECOLOGICAL INFORMATION

Degradability: (*Technical material*).

Methidathion is rapidly absorbed, broken down and eliminated in animals. The breakdown products of

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Methidathion are not of toxicological concern. In plants, rapid metabolism occurs.

Methidathion and its metabolites have a low mobility in soils. The compound is rapidly degraded in soil and water by chemical, photolytic and biological processes. DT₅₀ = 3 to 18 days.

ECOTOXICOLOGY: Highly toxic to birds and highly toxic to aquatic organisms (both vertebrate and invertebrate).

Birds:

Oral LD ₅₀ :	mallard ducks:	23 mg/kg
	Canadian geese:	8.41 mg/kg
	Ring-neck pheasant:	33.2 mg/kg

Fish:

LC ₅₀ :	rainbow trout:	10 to 14 µg/l
	bluegill sunfish:	2 to 9 µg/l

Bees: Slightly toxic to bees.

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
Subsidiary: 3.3
Packing group: II
Shipping name: Organophosphorus pesticide, liquid, toxic, **Flammable (Methidathion)**

Air Transport ICAO/IATA: Class: 6.1

Subsidiary: 3.3
Packing group: II
Shipping name: Organophosphorus pesticide, liquid, toxic, **Flammable (Methidathion)**

Maritime Transport IMDG/IMO: Class: 6.1

Subsidiary: 3.3
Packing group: II
Shipping name: Organophosphorus pesticide, liquid, toxic, **Flammable (Methidathion)**

MARINE POLLUTANT.

15. REGULATORY INFORMATION

Symbol: T, F, N
Indication of Danger: Toxic substance, **Flammable**, Environmentally dangerous substance

Risk phrases:

R 10 Flammable.
R23/24/25 Toxic by inhalation, in contact with skin and if swallow.
R 36/38 Irritating to eyes and skin.
R 43 May cause sensitisation by skin contact.
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.
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.
S 62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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.

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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.