

ROOTMASTER 98

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: ROOTMASTER 98
 Fungicide
UN No.: 2834
Company: 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

Active Ingredient:

Common Name: phosphorous acid 980
Chemical Name: phosphorous acid
CAS No.: 13598-36-2
Chemical family: inorganic
Chemical formula: H₃PO₃ (Mol. Wt.: 82)
Formulation: Phosphorous acid powder
Phosphorus acid equivalent: 980 g/kg

Use: A systemic fungicide for the control of *Phytophthora* root and Collar rot in citrus and Root rot in avocados.

Ingredients: phosphorous acid

Symbol: C, Xi, Xn
Indication of danger: Corrosive, Irritant
Risk Phrases: R 22, R 35, R 36/38

3. HAZARD IDENTIFICATION

Carcinogen status: OSHA & IARC: Not listed.
Toxicity class: WHO (III)
Main hazard:
 Harmful if swallowed. Causes severe burns.

Hygroscopic (absorbs moisture from the air). Air sensitive.

4. FIRST AID MEASURES AND PRECAUTIONS

Inhalation:

Irritation may lead to pneumonitis and pulmonary edema. Causes severe irritation of the upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Aspiration may lead to pulmonary edema. May cause systemic effects. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Skin contact:

Contact with powder is corrosive and causes severe burns and ulceration. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale colour. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse.

Eye contact:

Contact with liquid is corrosive to the eyes and causes severe burns. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Ingestion:

Causes gastrointestinal tract burns. If swallowed, **do not induce vomiting**. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. Get medical attention immediately. Qualified medical personnel should perform administration of oxygen. If the person is alert, rinse mouth thoroughly with water and give person large volumes of water or milk to drink. When vomiting occurs, keep head lower than hips to prevent aspiration.

Advice to physician:

No specific antidotes are available. Treat symptomatically. If the diluted product has been ingested, avoid gastric lavage and emesis. Dilute acid by drinking large amounts of water or milk. Ingested acid must be diluted approximately 100 fold.

Chronic:

Effects may be delayed. Repeated contact may cause corneal damage.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard:

Product reacts with metals and generates hydrogen that may cause potential flammable and explosive mixtures. May burn when exposed to heat or flames, but does not readily ignite.

Hazardous products of combustion:

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Fire may produce irritating or highly toxic oxides of phosphorous, flammable hydrogen and phosphine gases or other products of combustion.

Will react with metal with evolution of hydrogen giving rise to potentially flammable and explosive mixtures.

Extinguishing agents:

Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. 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. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind.

Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal. Dyke fire control water for later disposal. Do not scatter the material. Avoid pollution of waterways. Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

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Personal protective equipment:

Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus. Do not breathe corrosive fumes from burning material. Keep upwind.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Avoid contact with skin and eyes. Do not breathe in spray or fumes. 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. Considered as Marine Pollutant.

Occupational spill:

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

For spills: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Cover with sand, dry lime or soda ash and place in a closed container for

disposal. Provide ventilation. Label containers with its content and dispose it in accordance with local regulations. 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.

Open burning or dumping of this material is prohibited.

Do not get water inside containers.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Do not use near source of sparks or open flames. Harmful in contact with skin and if swallowed. Irritating to eyes and skin. Avoid contact with eyes and skin, and inhalation of spray and vapour. 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 product 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:

Do not store near sources of sparks, flame or heat. Keep under lock and key and out of reach of unauthorized persons, children and animals. Store in its original labelled container/bag in isolated, dry, cool and well-ventilated area. Not to be stored next to metals, foodstuffs and water supplies. Do not store in metal containers. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. 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 protective equipment including approved respiratory protection.

Respirator:

An approved respirator suitable for protection from mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

Clothing:

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Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

The use of safety goggles is recommended.

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:

White water soluble powder.

Corrosiveness:

Corrosive.

Solubility:

Forms a solution in water.

Density:

1,6510g /cm³

10. STABILITY AND REACTIVITY

Stability:

Chemically and thermally stable. Hygroscopic: absorbs moisture or water from the air. **Phosphorous acid**, ortho reacts with air to form **Phosphoric acid**.

Storage stability:

Stable for a period of 2 years under normal warehouse conditions.

Conditions and Materials to Avoid:

Keep the product in a cool, dry place, at below 30 °C. Protect from sunlight, open flame and sources of heat. Avoid contact water, metals, strong oxidizing agents, strong reducing agents, and strong bases.

Hazardous decomposition products:

Oxides of **phosphorous**. Phosphine.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ in rats:

K₂HPO₃ = Toxicity category III.

Technical (Phosphorous acid): 1895 mg/kg

Related potassium phosphate (KH₂PO₄): > 500 mg/kg

Acute dermal LD₅₀ in rabbits:

K₂HPO₃ = Toxicity category III.

1: Related potassium phosphate (KH₂PO₄): > 2000 mg/kg

2: Related potassium phosphate (KH₂PO₄): 4640 mg/kg

Acute inhalation in rats:

K₂HPO₃ = Toxicity category IV.

Acute skin irritation in rabbits:

K₂HPO₃ = Toxicity category IV.

Moderate irritant.

Acute eye irritation in rabbits:

K₂HPO₃ = Toxicity category III.

Moderate to severe irritant.

Dermal sensitisation:

The product is corrosive. Effects depend on concentration and duration of exposure. Repeated or prolonged contact may result in dermatitis or similar effects to acute exposure.

Other:

Given the low toxicity of mono- (KH₂PO₃) and di- (K₂HPO₃) potassium salts of **Phosphorous acid** (H₃PO₃) and history of safe use, a determination of no harm for the general population, as well as subgroups including infants and children, was made.

Based on tests with animals, these chemicals are not expected to harm humans. The substances have been used in Australia and other countries (South Africa and USA) for more than ten years with no indication of adverse effects.

Not listed as carcinogen, not listed as endocrine disrupter and not listed as reproductive and developmental toxin.

12. ECOLOGICAL INFORMATION

Phosphorous acid and its salts are not found naturally, but are closely related to common substances that are found in the environment. The active ingredients (salts) may share common metabolic mechanisms with other salts of phosphorous acid, however, due to limited use, these salts are not expected to pose significant contribution to the cumulative effects from fungicidal use. Most of the phosphate ingested by humans and animals is converted to orthophosphate (both H₂PO₄ & HPO₄), prior to absorption in the small intestine.

Drinking water exposure:

The product is likely to be biodegraded in the terrestrial and aquatic environments. Health risk is considered negligible.

ECOTOXICOLOGY:

A potential for exposure exists to non-target insects, fish and other wildlife with foliar spray applications. However, test results indicate that the product is practically non-toxic to birds and freshwater fish and slightly toxic to aquatic organisms. Therefore, do not apply directly to water and do not contaminate water.

Birds: Practically not toxic to birds.

Fish: Practically not toxic to freshwater fish.

Daphnia: Slightly toxic to invertebrates.

Bees: Practically not toxic to bees.

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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 cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers.

Comply with local legislation applying to waste disposal.

Container/bag disposal:

Emptied containers/bags retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

Clean applicator after use and dispose of wash water where it will not contaminate food, grazing, rivers or dams.

Containers and packages must be completely emptied before being disposed of. Shake out thoroughly into the mixing tank. Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite.

Do not burn the empty container.

Prevent contamination of food, feeds, drinking water and eating utensils.

Do not eat, drink or smoke whilst applying or mixing or before washing hands and face or change of clothing.

Comply with local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 2834

Road Transport ADR/RID:

Class: 8
 Packaging group: III
 Shipping name: Phosphorous acid (corrosive)

Air Transport IATA/ICAO:

Class: 8
 Packaging group: III
 Shipping name: Phosphorous acid (corrosive)

Maritime Transport IMDG/IMO:

Class: 8
 Packaging group: III
 Shipping name: Phosphorous acid (corrosive)

15. REGULATORY INFORMATION

Symbol: C, Xi, Xn
Indication of danger: Corrosive; Irritant; Harmful
Risk phrase(s):
Risk Phrases: R 22, R35, R 36/38.
R22 Harmful if swallowed.
R36/38 Irritating to eyes and skin.

R 35 Causes severe burns.

Safety phrases:

S 1/2 Keep locked up and out of reach children.
S 3/9/14 Keep in a cool, well-ventilated place away from metal and sources of ignition.
S 13 Keep away from food, drink and animal feeding stuffs.
S 20/21 When using do not eat, drink or smoke.
S 22 Do not breathe dust.
S 24/25 Avoid contact with skin and eyes.
S 26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice.
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 60 This material and its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment.

16. OTHER INFORMATION

Packaging:

Packed in 20 & 25 kg plastic bags and labelled according to 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.