

# UNIVERSAL DIFENOZIM 188 SC

# MATERIAL SAFETY DATA SHEET

## 1. IDENTIFICATION OF PRODUCT AND COMPANY

**Product Name:** DIFENOZIM 188 SC  
 Fungicide  
**UN No.** 3082  
**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](http://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:** 1) Carbendazim plus  
 2) Difenoconazole  
**Chemical Name:** 1) methyl benzimidazol-2-ylcarbamate (IUPAC);  
 2) *cis, trans*-3-chloro-4-[4-methyl-2-(1*H*-1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (IUPAC)  
**CAS No.:** 1) 10605-21-7;  
 2) 119446-68-3  
**Chemical Family:** 1) benzimidazole;  
 2) triazole  
**Chemical Formula:** 1) C<sub>9</sub>H<sub>9</sub>N<sub>3</sub>O<sub>2</sub>; 2) C<sub>19</sub>H<sub>17</sub>Cl<sub>2</sub>N<sub>3</sub>O<sub>3</sub>  
**Molecular weight:** 1) 191.2; 2) 406.3  
**Use:** Combination product. Systemic foliar fungicide with protective and curative action, with translocation acropetally. **Carbendazim** as an inhibitor of germ tube development and mycelia growth and **Difenoconazole** is a sterol demethylation (ergosterol biosynthesis) inhibitor.  
**Formulation:** Carbendazim 125 g/l plus  
 Difenoconazole 125 g/l

Soluble Concentrate

### Hazardous ingredients of toxicological concern:

Inert:	concern:	% present:
Carbendazim,	harmful	11.98%
Difenoconazole,	harmful, environment hazard	6.25 %
ethoxy glycol	severe irritant	4.69 %
phenyl sulphonate &		3.76 %
formaldehyde	corrosive, toxic	0.38 %
<b>Symbol:</b>	Xi; Xn; C	
<b>Indication of danger:</b>	irritant, harmful, corrosive	
<b>Risk phrases:</b>	R20/22, R36/37/38, R51	

## 3. HAZARD IDENTIFICATION

### Likely routes of exposure:

**Skin:** May cause severe irritation and may be corrosive, due to inerts. It is not likely to be absorbed in harmful amounts. Not expected to be a skin sensitizer. Some individuals may develop an allergic response.

**Eye:** May cause severe irritation to the eyes, due to inerts. Damage to the eyes may occur.

**Inhalation:** Not a hazard under normal use conditions. Prolonged or repeated exposure may irritate the respiratory tract, the eyes and may cause headaches and dizziness. Inhalation of excessive amounts of spray mist may cause respiratory irritation.

**Swallowed:** Data suggests the product is slightly toxic if swallowed, due to formaldehyde presence in product. Normal handling procedures is not expected to cause injury. 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 inerts in product, may cause mild to severe pulmonary injury.

**Other Health Hazard Information:** Persons with pre-existing dermatitis, respiratory disorders or an allergy history should take extra care in handling this product.

## 4. FIRST AID MEASURES AND PRECAUTIONS

**Inhalation:** If vapours or mists have been inhaled, and irritation has developed, remove the source of contamination or move victim to fresh air. The patient should be kept under observation and obtain medical attention if irritation persists.

**Skin contact:** Remove contaminated clothing, shoes and leather goods. Wash skin gently and thoroughly with cold water and non-abrasive soap. Obtain medical attention if irritation persists.

**Eye contact:** Immediately flush eyes with a stream of clean water for at least 20 minutes, holding the eyelid(s) open. Obtain medical attention if irritation persists.

**Ingestion: Do not induce vomiting due to the inerts.** Do not give anything by mouth. Obtain medical attention

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immediately. If the person is alert, rinse mouth thoroughly with water.

**Advice on treatment:** There is no specific antidote available.

Treat symptomatically. The product contains inerts that may cause chemical pneumonitis if aspirated into lungs. Watch for delayed onset of pulmonary. If ingested perform gastric lavage and administer activated charcoal.

### 5. FIRE FIGHTING MEASURES

**Flash point:** None – water based.

**This material is not flammable.**

**Hazardous products of combustion:** Product is combustible.

Fire may produce irritating and/or toxic vapours, mists or other products of combustion.

**Extinguishing agents:** Extinguish fires with carbon dioxide, dry powder/dry chemical extinguisher, or alcohol-resistant foam. Water spray can be used, but not direct jet of water. Avoid the accumulation of polluted run-off from the site.

**Firefighting:** 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.

**Personal protective equipment:** Fire may produce irritating and/or toxic vapours, mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

### 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:** 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.

### 7. HANDLING AND STORAGE REQUIREMENTS

**Handling:** 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 pesticide 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:** Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry, cool and well-ventilated area. Not to be stored next to feed, food and water supplies. 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:**

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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.

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

**Gloves:** Employee must wear appropriate chemical-resistant 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 liquid.

**Flammability:** Not Flammable.

**Flash point:** Not determined – water based product.

**Explosive properties:** Not explosive. not shock sensitive.

**Oxidizing properties:** Not oxidizing.

**Solubility:** Miscible in water (1%; ca 23 °C).

**Density:** 1.065

**pH:** 6.5.

### 10. STABILITY AND REACTIVITY

**Stability:** Stable under standard conditions.

**Sensitivity:** Not sensitive to humidity. Not sensitive to air. Thermally not sensitive. Not sensitive to light.

**Corrosiveness:** Appropriate material for packaging is polyethylene.

### 11. TOXICOLOGICAL INFORMATION

**Acute oral LD<sub>50</sub> rats:**

*Difenoconazole Technical:* >1453 mg/kg

*Carbendazim Technical:* >6400 mg/kg

**Acute dermal LD<sub>50</sub> rats:**

*Difenoconazole Technical:* > 2010 mg/kg

*Carbendazim Technical:* > 2000 mg/kg

**Acute skin irritation:**

*Difenoconazole Technical:* non-irritant

*Carbendazim Technical:* non-irritant

**Acute eye irritation:**

*Difenoconazole Technical:* non-irritant

*Carbendazim Technical:* non-irritation

**Dermal sensitisation:**

Not expected to be a skin sensitizer. Individuals may develop an allergic response, due to inerts. Prolonged or

repeated skin contact will defat the skin and may cause dermatitis.

### 12. ECOLOGICAL INFORMATION

**Mobility, Degradability & Accumulation:**

**Difenoconazole:**

*Difenoconazole* is practically immobile in soil and has a low potential to leach below topsoil layer.

In plants there are two routes of metabolism: one by a triazole route to triazolylalanine and triazolylacetic acid; the other by hydroxylation of the phenyl ring followed by conjugation.

In animals *Difenoconazole* is rapidly eliminated practically to entirety, with urine and faeces after oral administration.

**Carbendazim:**

It is mainly decomposed in the environment by micro-organisms. Minor metabolite found is 2-aminobenzimidazole.

Half-life in soil is 8 to 32 days under outdoor conditions, and 6 to 12 months on bare soil.

Half-life in water under aerobic and anaerobic conditions varies from 2 to 25 months.

Animals: In rats, following a single oral administration, more than 98% of an oral dose was recovered in urine and faeces within 72 hours; and 65% was eliminated in the urine within 6 hours. No accumulation of effects is expected.

**ECOTOXICOLOGY:**

**Birds:**

**Difenoconazole:** Non-toxic to birds.

Oral LD<sub>50</sub>: Japanese quail: > 2000 mg/kg

Mallard ducks: > 2150 mg/kg

**Carbendazim:** Non-toxic to birds.

Oral LD<sub>50</sub>: quail: 5826 – 15 595 mg/kg

**Fish:**

**Difenoconazole:** Toxic to fish.

LC<sub>50</sub> (96 hours): Bluegill sunfish: 1.2 mg/ℓ

Rainbow trout: 0.81 mg/ℓ

**Carbendazim:** Toxic to fish.

LC<sub>50</sub> (96 hours): carp: 0.61 mg/ℓ

Rainbow trout: 0.83 mg/ℓ

**Daphnia:**

**Difenoconazole:**

EC<sub>50</sub> (48 hours): 0.77 mg/ℓ

**Carbendazim:**

LC<sub>50</sub> (48 hours): *Daphnia magna*: 0.13 – 0.22 mg/ℓ

**Bees:**

**Difenoconazole:** Not toxic to bees.

LD<sub>50</sub> (contact and oral): > 100 µg/bee

**Carbendazim:** Not toxic to bees.

LD<sub>50</sub> (contact): > 50 µg/bee

**Earthworm:**

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**Difenoconazole:**

LD<sub>50</sub>: 610 mg/kg

**Carbendazim:** May diminish earthworm populations.

LC<sub>50</sub> (4 weeks) *Eisenia foetida*: 6 mg/kg soil

**Algae:**

**Difenoconazole:**

EC<sub>50</sub> (72 hours): *Scenedesmus subspicatus*:  
0.032 – 1.2 µg/ml

**Carbendazim:**

EC<sub>50</sub> (72 hours): *Scenedesmus subspicatus*: 419 mg/l

EC<sub>50</sub> (72 hours): *Selenastrum capricornutum*: 1,3 mg/l

## 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 disposal:** Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

**TRIPLE RINSE** empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain 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 one third of that of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite. Prevent contamination of food, feedstuffs, drinking water and eating utensils. Comply with local legislation applying to waste disposal.

## 14. TRANSPORT INFORMATION

**UN NUMBER:** 3082

**Road Transport ADR/RID:**

Not classified as dangerous good.

**Sea (IMDG-Code):**

Class: 9  
 Packaging group: III  
 Shipping name: Environmentally Hazardous Substance, Liquid, N.O.S.  
 (Carbendazim 125 g/l,  
 Difenoconazole 62.5 g/l)

**Considered a marine pollutant.**

## 15. REGULATORY INFORMATION

**Symbol:** Xi; Xn; C  
**Indication of danger:** irritant, harmful, corrosive  
**Risk phrase(s):**  
**R 20/22** Harmful by inhalation and if swallowed.  
**R 36/37/38** Irritating to eyes, respiratory system and skin.  
**R 51** Toxic to aquatic organisms.  
**Safety phrases:**  
**S 1/2** Keep locked up and out of reach children.  
**S 13** Keep away from food, drink and animal feeding stuffs.  
**S 23** Do not breathe vapour/spray.  
**S 24/25** Avoid contact with skin and eyes.  
**S 36/37/39** Wear suitable protective clothing, gloves and eye/face protection.  
**S 60** This material and its container must be disposed of as hazardous waste.  
**S 61** Avoid release to the environment. Refer to special instructions/safety data sheets.

## 16. OTHER INFORMATION

**Packaging:** Packed in 1, 5, 10, 20 and 25 litres polyethylene plastic containers 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.