

UNIVERSAL QUANTUM 275 EC

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product name: QUANTUM 275 EC
Fungicide
UN Number: 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

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) Difenoconazole
 2) Penconazole
Chemical Name: 1) *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)
 2) 1-(2,4-dichloro- β -propylphenethyl)-1*H*-1,2,4-triazole (IUPAC)
CAS No.: 1) [119446-68-3]
 2) [119446-68-3]
Chemical Family: 1) triazole
 2) triazole
Chemical Formula: 1) C₁₉H₁₇Cl₂N₃O₃ (Mol. wt: 406.3)
 2) C₁₃H₁₅Cl₂N₃ (Mol. wt: 284.2)
Use: Systemic fungicide with protective and curative action.
Formulation: 1) **Difenoconazole:** 150 g/l
 2) **Penconazole:** 125 g/l
 Emulsifiable Concentrate
Hazardous ingredient: **Difenoconazole**
Penconazole
 Aromatic hydrocarbon
SYMBOLS: Xi, Xn, N

RISK-PHRASE(S): R20/22, R37/38, R41, R50/53

3. HAZARD IDENTIFICATION

Toxicity class:

Difenoconazole: WHO III; **Penconazole:** WHO U
 Irritating to the skin, eyes and respiratory tract. The product may be fatal if inhaled or ingested. May be harmful if absorbed through the skin.

Likely routes of exposure:

Ingestion, inhalation and skin contact.

Eye contact:

Product is a severe eye irritant. Vapours cause eye irritation and splashes may cause severe irritation, possible corneal burns and eye damage.

Skin contact:

Harmful by skin contact. May be absorbed through the skin. Due to inert, the product is a skin irritant. Can cause dermatitis through defatting of tissue.

Ingestion:

Causes a burning sensation in mouth and stomach, nausea, vomiting and salivation if ingested. If swallowed and aspiration of the solvent into the lungs occurs, severe chemical pneumonitis may develop. Small amounts of product aspirated into the respiratory system during ingestion or vomiting may cause severe hemorrhagic pneumonitis with severe pulmonary injury or death. Normal handling procedures is not expected to cause injury.

Inhalation:

If inhaled for a prolonged period product may be toxic. Inhalation of vapours may be irritating to the nose and throat. High vapour concentrations are anaesthetic and central nervous system depressants. It may result in nausea, vomiting, headache, ringing in ears and severe breathing difficulties. Substernal pain, cough and hoarseness are also reported.

Chronic exposure:

Chronic inhalation may cause loss of appetite, headache, nervousness and pale skin. Repeated skin contact may cause a skin rash and repeated eye exposure to high concentrations of the vapour may cause reversible eye damage. Repeated exposure to the solvent may damage bone marrow, liver and kidneys.

Aggravation of Pre-existing Conditions:

People with pre-existing skin or eye problems, or impaired liver, kidney, blood or respiratory functions may be more susceptible to the effects of the product.

4. FIRST AID MEASURES AND PRECAUTIONS

There are no specific signs and symptoms for poisoning with the product. In view of the toxicity induced in experimental animals on repeated exposure with the

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ingredient of this product, proper care should be taken during occupational use to avoid inhalation/ingestion of fumes or spray particles and skin contact. Prevent accidental contamination of food products and water.

Inhalation:

Remove source of contamination or move person to fresh air. If breathing has stopped, perform artificial respiration. If breathing is laboured administer oxygen. Only medical personnel should administer oxygen. Keep person calm and reassured. Treat symptomatically and supportively as and when required. Obtain immediate medical attention.

Skin contact:

Immediately remove contaminated clothing, shoes and leather goods. Rinse skin gently and thoroughly with plenty of running water and non-abrasive soap. Seek medical attention if necessary. Wash clothes and thoroughly clean shoes before re-use.

Eye contact:

Immediately flush the eyes with gently flowing water for 20 minutes, lifting the upper and lower eyelid(s). Seek immediate medical attention.

Ingestion:

Provided person is conscious, rinse mouth with water. Give a slurry of activated charcoal in water to drink. **Do not induce vomiting due to the solvent.** If vomiting occurs spontaneously keep head lower than hips to prevent aspiration. Do not give anything by mouth to an unconscious person. Obtain medical attention immediately.

Advice to physician:

There is no specific antidote available. Treat symptomatically. The product contains solvent that may cause chemical pneumonitis if aspirated into lungs. Watch for delayed onset of pulmonary injury. If ingested, perform gastric lavage and administer activated charcoal.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard:

Flash point: >60 °C

Extinguishing agents:

Extinguish small fires with carbon dioxide, dry powder, halon or alcohol-resistant foam. Water spray or fog can be used for larger fires or cooling of unaffected stock, but avoid coming into 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 upwind. 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 or poisonous vapours (toxic oxides of nitrogen and corrosive bromine), 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:

Remove all sources of flame and sparks. Avoid contact with skin and eyes. Do not inhale fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations. Considered a marine pollutant.

Occupational spill:

Ventilate area of leak or spill. Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals. Use non-sparking tools and equipment

For spills: Soak up with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material, not saw-dust. 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. Open burning or dumping of this material is prohibited. Do not get water inside containers.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Do not operate near sources of ignition. May be fatal if ingested and harmful if inhaled. Avoid contact with eyes and skin and inhalation of fumes. Use with adequate

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ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using plenty of water and 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 labelled container at room temperature in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Protect from frost. Do not store next to foodstuffs and water supplies. Keep out of reach of children and animals. 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 full-face respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

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 synthetic protective gloves to prevent contact with this substance.

Eye protection:

The use of chemical safety goggles or a face shield is recommended.

Emergency eye wash: 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:

Amber

Odour:

Hydrocarbon solvent

Flammability:

Non-flammable. Flash point: > 60 °C

pH:

4.5

pH of 1% aqueous dilution:

6.3

Storage stability:

No separation or crystals after 7 days at 0 °C or 1 hour after seeding.

10. STABILITY AND REACTIVITY

Stability:

Chemically and thermally stable.

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 heat, sunlight, flames and ignition sources.

Hazardous decomposition products:

Fire may produce harmful combustion products, such as carbon monoxide and organic components, which are toxic and irritating.

Hazardous polymerization:

Product will not undergo polymerisation.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: (calculated)

650 mg/kg in rats

Acute dermal LD₅₀: (calculated)

>2000 mg/kg for rats

Acute inhalation LC₅₀: (Difenoconazole technical)

3300 mg/m³ air in rats

Acute skin irritation: (calculated)

Moderate skin irritant

Acute eye irritation: (calculated)

Severe eye irritant

Carcinogenicity: (calculated)

No information is available

Teratogenicity: (calculated)

May cause teratogenic effects due to solvent.

Mutagenicity: (calculated)

Not mutagenic

Toxicity class:

Difenoconazole: WHO (a.i.) III

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Penconazole: WHO (a.i.) U

12. ECOLOGICAL INFORMATION

Mobility, Degradability & Accumulation:

Difenoconazole:

Practically immobile in soil, strong adsorption to soil particles (mean adsorption coefficient normalised to organic carbon, $K_{oc,ads}$ 3759 ml/g), low potential to leach below top soil layer. Soil dissipation rate is slow and dependent on application rate; DT_{50} 50-150 d. DT_{50} from water 2 days.

Penconazole:

DT_{50} in soil is 133-343 d, depending on soil type. DT_{50} for photolysis is 4 d (natural sunlight).

Difenoconazole & Penconazole:

Animals: After oral administration, **Difenoconazole** and **Penconazole** is rapidly and practically completely eliminated, with urine and faeces. Residues in tissues are not significant and there is no evidence for accumulation.

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.

ECOTOXICOLOGY (technical material):

Birds:

Difenoconazole:

Oral LD_{50} (9-11d)	Japanese quail:	> 2000 mg/kg
	Mallard ducks:	> 2150 mg/kg

Penconazole:

Oral LD_{50} (8 d)	Japanese quail:	2424 mg/kg
	Mallard ducks:	> 1590 mg/kg
	Pekin ducks:	> 3000 mg/kg

Fish: Toxic to fish and aquatic organisms

Difenoconazole:

LC_{50} (96 hours)	Rainbow trout:	0.81 mg/l
	Bluegill sunfish:	1.2 mg/l
	Sheepshead minnows	0.82 mg/l

Penconazole:

LC_{50} (96 hours)	Rainbow trout:	1.7-4.3 mg/l
	Bluegill sunfish:	2.1-2.8 mg/l
	Carp:	3.6-4.6 mg/l

Daphnia:

Difenoconazole:

LC_{50} (48 hours):	<i>Daphnia:</i>	0.77 mg/l
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Penconazole:

IC_{50} (48 hours):	<i>Daphnia:</i>	7-11 mg/l
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Bees: Not toxic to bees.

Difenoconazole:

LD_{50} (contact):	> 187 µg/bee
LC_{50} (contact):	> 100 µg/bee

Penconazole:

LD_{50} (oral and topical) >5 µg/bee

Earthworm:

Difenoconazole:

LC_{50}	> 610 mg/kg
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Penconazole:

LC_{50} (14 d) for earthworms	>1000 mg/kg
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Algae:

EC_{50} (72 h) for <i>Scenedesmus subspicatus</i>	0.032-1.2 mg/l
IC_{50} (5 d) for <i>Scenedesmus subspicatus</i>	3.0 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 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 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:

Class:	9
Packaging group:	III
Shipping name:	Environmentally hazardous substance, liquid (Difenoconazole 150 g/l; Penconazole 125 g/l)

Maritime Transport IMDG/IMO:

Class:	9
Packing group:	III

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Shipping name: Environmentally hazardous substance, liquid
 (Difenoconazole 150 g/l;
 Penconazole 125 g/l)

END OF DOCUMENT

Considered a marine pollutant.

Compiled: September 2006
Reviewed: April 2019
Revision no.: (3)
Next revision date: April 2024

15. REGULATORY INFORMATION

Symbol: Xi, Xn, N
Indication of danger: Irritant, Harmful, Environmentally Hazardous

Risk phrases:

- R 20/22** Harmful by inhalation and if swallowed.
- R 37/38** Irritating to eyes, respiratory system and skin.
- R 41** Risk of serious damage to eyes.
- R 50/53** Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

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 16** Keep away from sources of ignition – No smoking.
- S 20/21** When using do not eat, drink or smoke.
- 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.

For detailed information on revisions, contact the Registration holder.

16. PACKING AND LABELLING

Packaging:

Packed in 1, 5, 10, 20 and 25 litres fluorinated 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.