1. PRODUCT & COMPANY IDENTIFICATION

Product Name: EPOXICONAZOLE 125 SC
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

Emergency telephone numbers:
24 Hr Transport / Spill emergency no:
Bateleur: +27 83 1233 911 or +27 860 333 911
(Client: Villa Crop Protection)
Poisoning:
Griffon Poison Information Centre +27 82 446 8946
Western Cape Poisons Tel. Service +27 861 555 777
Tygerberg Hospital +27 21 931 6129

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common name: Epoxiconazole
Chemical Name: (2RS,3SR)-1-[3-(2-chlorophenyl)-2,3-epoxy-2-(4-fluorophenyl)propyl]-1H-1,2,4-triazole (IUPAC)
CAS No.: 135319-73-2 (formerly 106325-08-0)
Chemical Family: triazole
Chemical Formula: C_{17}H_{13}ClFN_{3}O
Molecular weight: 329.8

Use: Systemic fungicide with protective and curative action. Inhibition of C-14-demethylase in sterol biosynthesis.

Formulation: Epoxiconazole 125 g/l Soluble Concentrate

3. HAZARD IDENTIFICATION

Likely routes of exposure:
Skin: Harmful. Product may be mildly irritating due to inert. It is not a skin sensitizer.
Eye: Harmful. Product may be moderately irritating to eyes.
Inhalation: May be harmful if mist or vapour is inhaled. Exposure to vapours may be harmful to mucous membranes and upper respiratory tract. May cause nausea, vomiting, dizziness and drowsiness, pulmonary edema and central nervous system depression. When heated or misted, rapid involuntary eye movement and coma may result.
Swallowed: May be slightly poisonous if ingested.

Other Health Hazard Information: Product not considered mutagenic, teratogenic or carcinogenic, but inerts, present at low concentrations in the product, may be. At normal dose rates none of the above hazards are likely to occur.

4. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of human poisoning:
The product may cause mild to moderate irritation, tearing, nausea, vomiting, diarrhoea, headache, breathing difficulty and death.

Inhalation: If vapours or mist was inhaled, immediately remove the person from the contamination to a well-ventilated area. Keep person calm and reassured. If not breathing, give artificial respiration. If breathing is laboured, give oxygen. Oxygen should only be administered by qualified medical personal. Seek medical attention if necessary.

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

Eye contact: Immediately flush eyes with a gentle flowing stream of clean cold water for at least 15 minutes, holding the eyelid(s) open. Obtain medical attention immediately.

Ingestion: Immediately induce vomiting as directed by medical personnel. Thoroughly rinse mouth with clean water. Give several glasses of milk or water to drink, or a slurry of activated charcoal in water. Do not give anything by mouth to an unconscious person. Obtain medical attention immediately.
5. FIRE FIGHTING MEASURES

This product is not flammable.

Extinguishing agents:
Extinguish fires with carbon dioxide, foam, dry chemical powder or a fine water spray. Water spray can be used to extinguish surrounding fire and cool unaffected or exposed containers.

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 spray can be used to cool unaffected containers. Dyke fire control water for later disposal. Do not scatter the material. Do not use high volume water jet, due to contamination risk. Avoid the accumulation of polluted run-off from the site and pollution of waterways.

Personal protective equipment:
Fire may produce irritating or toxic vapours or mists. Firefighters 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, eyes and clothing. Do not breathe in spray or fumes. Wear personal protective clothing. Immediately remove contaminated clothing, undergarments and shoes. For personal protection see Section 8.

Environmental precautions:
Do not allow entering into drains, surface or groundwater or spilling onto soil. Considered a Marine Pollutant.

Occupational spill:
Avoid breathing mist/vapour and skin contact. Remove sources of ignition if combustible or flammable vapours may be present. Ventilate area. Wear proper protective equipment. Dike contaminated area with absorbent granules, soil, sand, etc.

For spills:
Isolate area and keep unauthorised persons away. Do not walk through spilled material. Soak up with absorbent material such as damp earth, sand, absorbent granules, 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 absorbent 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. Contaminated soil may have to be removed and disposed. Label drums with its content and dispose of it in accordance with local regulations. Open burning or dumping of this material is prohibited.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:
Product may be moderately irritating to eyes and mildly irritating to 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 water and change into 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 foodstuffs, feed 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:
If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable
UNIVERSAL EPOXICONAZOLE 125 SC

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:
Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance. Wash contaminated clothing and clean protective equipment before re-use.

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:
Gray-white suspension concentrate with no odour.

Flammability:
Not flammable

Flash point:
Water based

Explosion properties:
Not explosive

Solubility:
Completely soluble in water.

Density:
1.024 g/m³

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 well-ventilated place. Protect from sunlight, open flame and sources of heat. Avoid contact with strong bases, acids and oxidising agents, perchloric acid and chromyl chloride.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ rats:
Epoxiconazole Technical: >5000 mg/kg
Formulation calculated: > 2000 mg/kg

Acute dermal LD₅₀ rats:
Formulation calculated: > 2000 mg/kg

Acute skin irritation:
Formulation calculated: mild irritant

Acute eye irritation:
Formulation calculated: moderate irritant

Dermal sensitisation:
Not expected to be a skin sensitizer.

Inhalation:
Generally not a problem. May be harmful to mucous membranes and upper respiratory tract due to the presence of preservative.

Technical: LC₅₀ (4hours) for rat: > 5.3 mg/air

Mutagenicity:
Not considered mutagenic. Preservative may be mutagenic.

Reproductivity:
Product may be a slight reproductive hazard due to inert.

Teratogenicity:
Not considered teratogenic. Preservative may cause heritable genetic damage.

Carcinogenicity:
NOAEL of active ingredient for mice is 2.0 mg/kg/day at 38 mg/kg/day dose levels. At normal doses it is unlikely to be carcinogenic.

12. ECOLOGICAL INFORMATION

Mobility, Degradability & Accumulation:
Epoxiconazole is relatively stable in the environment with hydrolysis or photolysis not likely. In aerobic soil and aquatic conditions it is slowly degraded.

In soil Epoxiconazole is strongly to moderately absorbed. In column and field studies there was no evidence of leaching and, therefore, it has a relatively low potential to contaminate adjacent surface water. Degradation of technical Epoxiconazole in soil is by microbial activity, DT₅₀ c. 2 – 3 months.

Epoxiconazole is extensively degraded in plants and is not phytotoxic to non-target terrestrial plants. When administered to animals, Epoxiconazole is rapidly excreted via faeces. It is not likely to bio-accumulate in rainbow trout and residues are rapidly eliminated. No major metabolites are formed, but a high number of minor metabolites are. Important metabolic reactions are
cleavage of the oxirane ring, hydroxylation of the phenyl rings and conjugation.

It is non-toxic to birds, bees, ladybirds and ground beetles and relatively harmless to earthworms.

**ECOTOXICOLOGY: (Based on active ingredient)**

**Birds:**
- Oral LD$_{50}$: Bobwhite quail: > 2000 mg/kg
- LC$_{50}$: Bobwhite quail: > 5000 mg/kg

**Fish:**
- Moderate to highly toxic to fish (and aquatic invertebrates)
- LC$_{50}$ (96 hours): Bluegill sunfish: 4.6 – 6.8 mg/l
- Trout: 2.2 – 4.6 mg/l

**Daphnia:**
- LC$_{50}$ (48 hours): *Daphnia magna*: 8.7 mg/l

**Bees:**
- LD$_{50}$: > 100µg/bee

**Earthworm:**
- EC$_{50}$ (14 days): > 1000 mg/kg soil

**Algae:**
- Toxic

**Duckweed:**
- Highly toxic.

This effect is reduced in the presence of sediment.

Considered a Marine Pollutant.

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, N.O.S. (*Epoxiconazole 125 g/l*)

**Maritime Transport IMDG/IMO:**
- Class: 9
- Packaging group: III
- Shipping name: Environmentally Hazardous Substance, N.O.S. (*Epoxiconazole 125 g/l*)

Considered a marine pollutant.

15. REGULATORY INFORMATION

**Symbol:** X$_n$, X$_i$, N

**Indication of danger:** Harmful; Irritant, Environmentally Hazardous substance.

**Risk phrase(s):**
- R 23/25 Toxic by inhalation and if swallowed.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 51 Toxic to aquatic organisms.
- R 53 May cause long-term adverse effects in the aquatic environment.

**Safety phrases:**
- S 2 Keep out of reach children.
- S 3/9/14 Keep in a cool, well-ventilated place away from food, drink and animal feedstuffs.
- S 20/21 When using do not eat drink or smoke.
- S 36/37 Wear suitable protective clothing and gloves.
- S 46 If swallowed, seek medical advice immediately and show container or label.

16. OTHER INFORMATION

**Packaging:**
Packed in 1, 2, 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.

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