

UNIVERSAL FLUSILAZIM EXTRA 375 SC MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: FLUSILAZIM EXTRA 375 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
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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 36 698 0668

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common name: 1) Flusilazole plus
 2) Carbendazim

Chemical Name: 1) bis(4-fluorophenyl)(methyl)(1*H*-1,2,4-triazol-1-ylmethyl)silane; 1-[[bis(4-fluorophenyl)(methyl)silyl]methyl]-1*H*-1,2,4-triazole (IUPAC);
 2) methyl benzimidazol-2-ylcarbamate (IUPAC)

CAS No.: 1) 85509-19-9
 2) 10605-21-7

Chemical Family: 1) triazole;
 2) benzimidazole carbamate

Chemical Formula: 1) C₁₆H₁₅F₂N₃Si; 2) C₉H₉N₃O₂

Molecular weight: 1) 315.4; 2) 191.2

Use: Combination product. Systemic foliar fungicide with protective and curative action, with translocation acropetally. **Flusilazole** is a steriod demethylation (ergosterol biosynthesis) inhibitor and **Carbendazim** is an inhibitor of germ tube development and mycelia growth.

Formulation: Flusilazole 125 g/l plus
 Carbendazim 250 g/l
 Soluble Concentrate

Hazardous ingredients of toxicological concern:

Inert:	concern:	% present:
Flusilazole	harmful when swallowed	13.16 %
Carbendazim		25.51 %
glycol	severe irritant	±3 %
formaldehyde	corrosive, toxic	± 0.6 %
Symbol:	Xi, Xn	
Indication of danger:	Irritant, Harmful	
Risk-Phrases:	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 and 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 immediately. If the person is alert, rinse mouth thoroughly with water.

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Advice on treatment: There is no specific antidote available.
 Treat symptomatically. The product contains inerts that may cause chemical pneumonitis if aspirated into lungs. 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:

Fire may produce irritating or poisonous vapours (toxic fumes of hydrogen cyanide and oxides of nitrogen and carbon), mists or other products of combustion.

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.

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 or poisonous vapours (toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon), 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 of 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 of 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 foodstuffs 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

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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.

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

Eye protection: The use of safety goggles 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: White liquid suspension with no odour.

Flammability: Not flammable.

Flash point: Not determined – water based product.

Solubility: Soluble in water.

Density: 1.1116 g/ml

pH: 8.1 in 1% dilution.

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 sunlight, open flame and sources of heat. Avoid contact with strong acids, strong bases and strong oxidising agents.

Hazardous decomposition products: Fire may produce harmful combustion products (traces of hydrogen cyanide and oxides of nitrogen and carbon).

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ rats:

Flusilazole technical: 1100 mg/kg

Carbendazim technical: 6400 mg/kg

Acute dermal LD₅₀ rats:

Flusilazole technical: > 2000 mg/kg

Carbendazim technical: > 2000 mg/kg

Acute skin irritation:

Flusilazole technical: mild irritant

Carbendazim technical: non-irritant

Acute eye irritation:

Flusilazole technical: mild irritant

Carbendazim technical: may cause 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.

Inhalation: Slight toxic. Inhalation of excessive amounts may cause respiratory irritation.

Mutagenicity:

Flusilazole: Studies to assess gene mutation, chromosomal aberration, or unscheduled DNA synthesis were clearly negative.

Several *in vitro* and *in vivo* tests suggest that **Carbendazim** is probably not a mutagen.

Reproductivity:

Flusilazole: There was no evidence of a treatment-related effect on mating or fertility when rats were fed daily diets containing technical-grade **Flusilazole** (purity, 96.7%) at doses of 0, 2, 9, and 27 mg/kg bw per day for males and 0, 2, 11, and 31 mg/kg bw per day for females, for 90 days before mating.

Carbendazim: In a three generation reproduction rat study, no adverse effects were showed.

Teratogenicity:

Carbendazim: Teratogenic and foetotoxic effects were observed in laboratory animals following bolus oral dosing, but not following dietary exposure.

Carcinogenicity:

Flusilazole: There was no NOAEL for systemic toxicity; the NOAEL for oncogenicity was 14.8 mg/kg bw per day when groups of 65 male and 65 female Crl:CD(SD)BR rats received diets containing technical-grade **Flusilazole** (purity, 95%) at doses of 0, 125, 375, or 750 ppm, equal to 0, 5.03, 14.8, and 30.8 mg/kg bw per day for males and 0, 6.83, 20.5, and 45.6 mg/kg bw per day for females, for two years.

Carbendazim: Increased incidences of benign and malignant hepatic tumours were observed during a two year feeding study on mice. The carcinogenic effect in some studies was shown to be related to impurities mainly DAP and HAP.

12. ECOLOGICAL INFORMATION

Mobility, Degradability & Accumulation:

Flusilazole:

The half-life under field conditions averaged 95 days.

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.

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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:

Flusilazole: Non toxic to birds.

Oral LD₅₀: Mallard ducks: > 1590 mg/kg

Carbendazim: Non toxic to birds.

Oral LD₅₀: quail: 5826 - 15 595 mg/kg

Fish:

Flusilazole: Moderately toxic to fish.

LC₅₀ (96 hours): Bluegill sunfish: 1.7 mg/l

Rainbow trout: 1.2 mg/l

Carbendazim: Highly toxic to fish.

LC₅₀ (96 hours): carp: 0.61 mg/l

Rainbow trout: 0.83 mg/l

Daphnia:

Flusilazole: Moderately toxic to Daphnia

EC₅₀ (48 hours): *Daphnia magna*: 3.4 mg/l

Carbendazim: Highly toxic to Daphnia

LC₅₀ (48 hours): *Daphnia magna*: 0.13 - 0.22 mg/l

Bees:

Flusilazole: Not toxic to bees.

LD₅₀ (contact and oral): > 150 µg/bee

Carbendazim: Not toxic to bees.

LD₅₀ (contact): > 50 µg/bee

Earthworm:

Carbendazim: May diminish earthworm populations.

LC₅₀ (4 weeks) *Eisenia foetida*: 6 mg/kg soil

Algae:

Carbendazim: Non toxic to algae.

EC₅₀ (72 hours): *Scenedesmus subspicatus*: 419 mg/l

EC₅₀ (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 re-used 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 dump site. 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. (**Flusilazole** 250 g/l plus **Carbendazim** 125 g/l)

Maritime Transport IMDG/IMO:

Class: 9

Packaging group: III

Shipping name: Environmentally Hazardous Substance, N.O.S. (**Flusilazole** 250 g/l plus **Carbendazim** 125 g/l)

Considered a marine pollutant.

15. REGULATORY INFORMATION

Symbol: Xi, Xn

Indication of danger: Irritant, Harmful

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.

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16. OTHER INFORMATION

Packaging: Packed in 1, 5, 10, 20 and 25 litres non-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.

END OF DOCUMENT

Compiled: November 2011

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For detailed information on revisions, contact the Registration holder.

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