

VILLA IMPROVE 250 SC

MATERIAL SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: IMPROVE 250 SC
 Fungicide
UN No.: 3082
Supplier: Villa Crop Protection (Pty) Ltd.
 PO Box 10413,
 Aston Manor, 1630, 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: Azoxystrobin + Epoxiconazole
Chemical Name: methyl (E)-2-[2-[6-(2-cyanophenoxy) pyrimidin-4-yloxy] phenyl]-3-methoxyacrylate (IUPAC)
 (2RS, 3SR)-1-[3-(2-chlorophenyl)-2,3-epoxy-2-(4-fluorophenyl) propyl]-1H-1, 2, 4-triazole (IUPAC)
CAS No.: 131860-33-8 (formerly 215934-32-0)
 135319-73-2 (formerly 106325-08-0)
Chemical Family: strobilurin type: methoxyacrylate triazole
Chemical Formula: C₂₂H₁₇N₃O₅
 C₁₇H₁₃ClFN₃O
Molecular weight: 403.4
 329.8
Use: Fungicide with protectant, curative, eradicator, translaminar and systemic properties. Inhibits spore germination and mycelial growth, and also shows antispore activity. Systemic fungicide with protective and curative action. Inhibition of C-14-demethylase in sterol biosynthesis.

Formulation: Azoxystrobin + Epoxiconazole 250 g/l
 Suspension concentrate

Hazardous ingredients of toxicological concern:

Inert:	concern:	% present:
Azoxystrobin	toxic by inhalation, Very toxic to aquatic organisms	13.16 %
Epoxiconazole	Mild irritant	13.16 %
Other inerts		8.16%

Symbol: Xi, Xn, N, T

Indication of danger: irritant, harmful, environmentally dangerous, toxic by inhalation & toxic to aquatic organisms

Risk phrases: R22, R23, R36/38, R50/53

3. HAZARD IDENTIFICATION

Likely routes of exposure: **Skin:** Harmful. May cause irritation. Not expected to be a skin sensitizer.
Eye: Harmful. May cause moderate irritation to the eyes.
Inhalation: Toxic through inhalation. 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: The product is harmful if swallowed.

4. FIRST AID MEASURES AND PRECAUTIONS

Inhalation: If product has been inhaled, remove the source of contamination or move victim to fresh air. Administer artificial respiration if patient is not breathing; if breathing is laboured supply oxygen. Only qualified personnel should administer oxygen. Immediately obtain medical attention.
Skin contact: Remove contaminated clothing, shoes and leather goods. Wash skin gently and thoroughly with copious amounts of water and non-abrasive soap for 15 to 20 minutes. Obtain medical attention if irritation persists.
Eye contact: Immediately flush eyes with a stream of clean gently flowing water for at least 15 minutes, holding the eyelid(s) open. Remove contact lenses, if present, after the first 5 minutes. Obtain medical attention if irritation develops.
Ingestion: Rinse mouth thoroughly with water if person is alert. Have person drink plenty of water if able to swallow. Never give anything by mouth to an unconscious person. Do not induce vomiting, unless instructed to do so by a physician. If vomiting occurs keep head lower than hips to prevent aspiration. **Immediately obtain medical attention.**

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Advice on treatment: There is no specific antidote available. Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

This material is not flammable.

Hazardous products of combustion: Product is not explosive, but dust/air mixture may be explosive in the presence of an ignition source.

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

Extinguishing agents: Extinguish fires with dry powder/dry chemical extinguisher, water fog, foam, carbon dioxide. 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.

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

Occupational spill: Avoid breathing mist/vapour and skin contact. Do not touch spilled material; stop leak if you can do it without risk. Ventilate area. Wear proper protective equipment. Keep out unprotected persons and animals.

For spills: Isolate area and keep unauthorized persons away. Ventilate area of leak or spill. 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. Label drums with its content and dispose of it in accordance with local regulations. 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.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Harmful if swallowed. 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. Thereafter 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 out of reach of unauthorised persons, children and animals. Store in its original, labelled, tightly-closed container in dry, cool and well-ventilated area, away from heat or open flame. Do not store 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:

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: Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin

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contact with this substance. Wear long-sleeved shirt and long pants, chemical-resistant foot ware. Wash contaminated clothing and clean protective equipment before re-use.

Gloves: Employee must wear appropriate chemical-resistant and waterproof gloves to prevent contact with this substance.

Eye protection: The use of safety goggles, safety glasses or face shield is recommended. If vapour exposure causes eye discomfort a full-face respirator 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 soluble concentrate.

Flammability: Not flammable.

Flash point: Not applicable.

Explosive properties: Not explosive.

Solubility: Forms a suspension.

Density: 1.078 g/l (20 °C).

pH: 6.3.

pH of 1% aqueous dilution: 6.5.

10. STABILITY AND REACTIVITY

Stability: Considered stable under normal temperatures and storage conditions.

Storage stability: Stable for up to 2 years when stored in a dry, cool covered warehouse in original, well-labelled containers. Store at low temperature conditions, below 50°C, preferably below 30 °C and not for prolonged periods in direct sunlight.

Incompatibility: Keep the product in a cool, dry well-ventilated place. Protect from sunlight, open flame and sources of heat. Avoid contact with strong oxidizing agents and strong acids.

Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ rats:

Azoxystrobin Technical: > 5000 mg/kg

Epoxiconazole Technical: > 5000 mg/kg

Acute dermal LD₅₀ rats:

Azoxystrobin Technical: > 2000 mg/kg

Epoxiconazole Technical: > 2000 mg/kg

Acute inhalation LC₅₀ rats:

Azoxystrobin Technical: 0.69 – 0.96 mg/l

Epoxiconazole Technical: > 5.3 mg/l

Acute skin irritation: Mild irritant

Acute eye irritation: Moderate irritant

Dermal sensitisation: Not a skin sensitizer.

Teratogenicity: Technical material is not teratogenic.

Mutagenicity: Technical material is not mutagenic.

Carcinogenicity: Technical material is not carcinogenic.

12. ECOLOGICAL INFORMATION

Mobility, Degradability & Accumulation: Azoxystrobin

Although the technical material is practically nontoxic to birds, mammals and bees, it is highly toxic to freshwater fish and invertebrates, estuarine/marine fish, and very highly toxic to estuarine/marine invertebrates.

In soil: Average DT₅₀ (lab.) of **Azoxystrobin** is 8 weeks (20 °C, pF 2). In the dark, six identified metabolites were formed. Dissipation in the field is faster, average DT₅₀ is 2 weeks, DT₉₀ 41 weeks. On soil, photolysis DT₅₀ is 11 days.

Azoxystrobin and its degradates have low to moderate mobility in soil; typical K_{oc} for **Azoxystrobin** is c. 500. Field dissipation studies showed that neither **Azoxystrobin** nor its major degradates were typically found in soil below the top 15 cm.

In water: Technical material should photodegrade in water (DT₅₀ 11 – 17 days).

In plants: In wheat, grapes and peanuts, metabolism was extensive, but parent **Azoxystrobin** was the only major (>10%) residue. Metabolism pathways were similar in all three crops.

In animals: In rats, the majority of radiolabeled technical material is excreted in the faeces, with little remaining radioactivity in any tissues of the animal. A large number of metabolites was formed, of which only the glucuronide of **Azoxystrobin** acid is present at >10% of the administered dose. In goats and hens, **Azoxystrobin** is also excreted rapidly, with low residues in milk, meat or eggs.

Mobility, Degradability & Accumulation: Epoxiconazole.

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 adsorbed. 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 to 3 months.

Epoxiconazole is extensively degraded in plants and is not phytotoxic to non-target terrestrial plants.

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When administered to animals, **Epoxiconazole** is rapidly excreted via faeces. It is not likely to bioaccumulate 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 TECHNICAL)

Birds: Azoxystrobin

LD ₅₀ :	Bobwhite quail & Mallard ducks	> 2000 mg/kg
LC ₅₀ (5d):	Bobwhite quail & Mallard ducks	> 5200 mg/kg

Birds: Epoxiconazole

LD ₅₀ :	Bobwhite quail:	> 2000 mg/kg
LC ₅₀ :	Bobwhite quail:	> 5000 mg/kg

Fish: (Azoxystrobin) Toxic to fish.

LC ₅₀ (96h):	Bluegill sunfish:	1.1 mg/l
	Rainbow trout:	0.47 mg/l

Fish: (Epoxiconazole) Moderate to highly toxic to fish (and aquatic invertebrates)

LC ₅₀ (96h):	Bluegill sunfish:	4.6 – 6.8 mg/l
	Trout:	2.2 – 4.6 mg/l

Daphnia: (Azoxystrobin)

EC ₅₀ (48h):		80 g/l
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Daphnia: (Epoxiconazole)

LC ₅₀ (48h):	<i>Daphnia magna</i> :	8.7 mg/l
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Bees: (Azoxystrobin)

LD ₅₀ (48h) (oral):		> 25 µg/bee
LD ₅₀ (48h) (contact) :		> 200 µg/bee

Bees: (Epoxiconazole)

LD ₅₀		> 100µg/bee
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Earthworm: (Azoxystrobin)

LC ₅₀ (14d):		283 mg/kg
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Earthworm: (Epoxiconazole)

EC ₅₀ (14d):		> 1000 mg/kg soil
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Algae: (Azoxystrobin)

EC ₅₀ (120h):		0.12 mg/l
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Algae: (Epoxiconazole) Toxic

EC ₅₀ (72hrs):	<i>green algae</i> :	2.3 mg/l
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Duckweed: (Epoxiconazole) 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 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. If burning of the container is allowed, stay out of smoke.

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 a 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
ADR/IRD:	
Class:	9
Packaging group:	III
Shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S (Azoxystrobin 125 g/l + Epoxiconazole 125 g/l)

IMDG/IMO:	
Class:	9
Packaging group:	III
Shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S (Azoxystrobin 125 g/l + Epoxiconazole 125 g/l)

ICAO/IATA:	
Class:	9
Packaging group:	III
Shipping name:	Environmentally Hazardous Substance, Liquid, N.O.S (Azoxystrobin 125 g/l + Epoxiconazole 125 g/l)

Considered a marine and fresh water pollutant.

15. REGULATORY INFORMATION

Symbol:	Xi, Xn, N, T
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Indication of danger: irritant, harmful,
 environmentally hazardous,
 Toxic to aquatic organisms.

Risk phrase(s):

- R 22** Harmful if swallowed.
- R 23** Toxic by inhalation.
- R 36/37/38** Irritating to eyes, respiratory system and skin.
- R 51/53** 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 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 46** If swallowed, seek medical advice immediately and show container or label.
- S 61** Avoid release to the environment. Refer to special instructions/safety data sheets.

16. OTHER INFORMATION

Packaging: Packed in 1, 5, 10, 20 or 25 litres 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 and use of the product. It is not applicable to unusual or non-standard use 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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- Reviewed:** March 2019
- Revision no.:** (2)
- Next revision date:** March 2024

For detailed information on revisions, contact the Registration holder.