


Safety Data Sheet

FORTRESS

Reg. No: L 9269 (Act No 36 of 1947)

1) PRODUCT AND COMPANY IDENTIFICATION	
Product name:	FORTRESS
Other means of identification:	Azoxystrobin 250 SC
Chemical Name:	methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate (IUPAC)
Recommended use:	Fungicide
Restrictions on use:	Agriculture
UN No:	3082
Distributed by:	MERIDIAN AGRITECH P O BOX 436 MODDERFONTEIN TEL 011 8228509 FAX 0866901386 MOBILE: 0834006056 www.agritech.co.za
Emergency Number:	POISON CENTRE (UNITAS HOSPITAL) 012 664 1100 WESTERN CAPE POISONS TELEPHONE SERVICE: 0861 555 777 RAPID SPILL RESPONSE 0800 775 3305 GRIFFON POISON CENTRE: 082 446 8946.
2) HAZARDS IDENTIFICATION	
Classification of the substance/mixture:	Acute Toxicity (Inhalation) Category 3 Aquatic Acute Category 1 Aquatic Chronic Category 1
Label Elements: Globally Harmonized System, EU (GHS):	<p>Pictograms:</p>  <p>Signal Word: Danger</p> <p>Hazard Statements: H331: Toxic if inhaled. H400: Very toxic to aquatic life. H410: Very toxic to aquatic life with long-lasting effects.</p> <p>Precautionary Statements: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P260: Do not breathe fumes/vapours /spray. P262: Do not get in eyes, on skin, or on clothing. P270: Do not eat, drink or smoke when using the product. P271: Use only outdoors or in a well-ventilated area. P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment. P280: Wear protective gloves, protective clothing, eye protection. P321: Specific treatment (See First aid measures on this label) P362+P364: Take off contaminated clothing and wash it before reuse.</p>

<p>According to Directive 67/548/EEC No. 1272/2008 [CLP]</p>	<p>P405: Store locked up.</p> <p>Hazard Symbol(s): Xn – Harmful N – Dangerous for the environment</p> <p>R-phrases(s): R23: Toxic by inhalation. R50/53: Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.</p> <p>S-phrases(s): S2: Keep out of reach of children. S13: Keep away from food, drink and animal feeding stuffs. S20/21: When using, do not eat drink or smoke. S22: Do not breathe vapour. S35: This material and its container must be disposed of in a safe way. S36/37: Wear suitable protective clothing and gloves. S46: If swallowed, seek medical advice immediately and show this container or label. S57: Use appropriate containment to avoid environmental contamination.</p>
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3) COMPOSITION / INFORMATION ON INGREDIENTS:

3.1 Substances:

Not applicable

3.2 Mixtures:

Chemical name	% composition	CAS No.	EC No.	Classification according to Regulation EC 1272/2008 (CLP)
Azoxystrobin	25.0%	131860-33-8	603-524-3	Acute Tox. Cat. 3 (H331) Aquatic Acute Cat. 1 (H400) Aquatic Chronic Cat. 1 (H410)

4) FIRST AID MEASURES:

Description of First-Aid Measures:

Inhalation:

Remove patient to fresh air. Loosen clothing around neck. Lie down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. **Seek medical assistance.**

Skin contact:

Immediately flush body and clothes with large amounts of water. Remove contaminated clothing and footwear. Wash affected areas with soap and water. Seek medical assistance if irritation occurs or persists.

Eye contact:

Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. **Seek medical assistance.**

Ingestion:

Never give anything by mouth to an unconscious person. Do not induce vomiting. Plenty of water may be given to drink. For advice, contact the National Poisons Centre. **Seek medical assistance immediately** and show this container or material safety data sheet.

Most important symptoms and effects, both acute and delayed:

None known


Indication of any immediate medical attention and special treatment needed:

No specific antidote known. Treat symptomatically. If gastric lavage is considered to be necessary, prevent

	aspiration of gastric material. Consider the administration of activated medicinal charcoal and a laxative.
5) FIRE-FIGHTING MEASURES:	
Suitable extinguishing media:	Fine water spray, foam, carbon dioxide, dry chemical powder.
Unsuitable extinguishing media:	Do not use high volume water jet, due to contamination risk.
Specific Hazards arising from the substance/mixture:	Fire may produce irritating or poisonous vapours, mists or other products of combustion. Do not breathe fumes.
Fire Fighting:	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. Do not scatter the material. Avoid pollution of waterways.
Protective clothing:	Full protective clothing and self-contained breathing apparatus
6) ACCIDENTAL RELEASE MEASURES:	
Personal precautions, protective equipment and emergency procedures:	Do not breathe vapor or spray. Avoid contact with skin, eyes and clothing. Wear personal protective clothing according to operator safety during removal of spillage. Do not eat, drink or smoke during the clean-up process. Clear area of unprotected personnel. Wear protective gear as mentioned in section 8 below.
Environmental precautions:	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Do not allow to enter drains or watercourses. If contamination of water courses is unavoidable, report to the Police and the Department of Water/Environmental Affairs immediately.
Methods and material for containment and cleaning up:	Wear protective clothing. Clear area of unprotected personnel. Contain and absorb liquid spills with inert material such as sand, soil or sawdust, remove by scoop or vacuum. Use approved industrial vacuum cleaner for removal and place in waste containers. Wash area with water and detergent and absorb with further inert material. Heavily contaminated soil layers have to be dug out down to clean soil. If spill does enter waterways contact the local authority. Spilled product cannot be re-used and must be disposed of by incineration or disposal in a chemical waste disposal facility. If containers cannot be recycled, they should be disposed of together with the waste chemical. Deal with spillages immediately. If contamination of drains, streams, watercourses etc. is unavoidable, then warn the local authorities.
7) HANDLING & STORAGE:	
Precautions for Safe Handling:	Avoid skin and eye contact and inhalation of spray mist. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. Wash contaminated clothing before re-use. APPROVED HANDLER: This product must be under the control of an approved handler when applied in a wide dispersive manner; or used by a commercial contractor.

Conditions for Safe Storage, including any incompatibilities:	Store in original container tightly closed and in a locked, dry, cool area away from foodstuffs, fertilisers and seeds. Keep away from children or uninformed persons. Stable for at least two years in the original unopened container at ambient temperatures.										
8) EXPOSURE CONTROL / PERSONAL PROTECTION:											
Appropriate Engineering Controls:	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.										
Control Parameters: Occupational exposure limits:	<table><tr><td>Ingredient</td><td>CAS#</td><td>Limit</td><td>Basis</td></tr><tr><td>Formaldehyde gas</td><td>50-00-0</td><td>STEL: 0.3 ppm</td><td>ACGIH (TLV) [United States]</td></tr></table>			Ingredient	CAS#	Limit	Basis	Formaldehyde gas	50-00-0	STEL: 0.3 ppm	ACGIH (TLV) [United States]
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PERSONAL PROTECTIVE EQUIPMENT:											
Clothing:	Consult supplier to confirm that the equipment is suitable.										
Respiratory protection:	Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.										
Gloves:	Wear a suitable respirator if ventilation is inadequate.										
Eye protection:	Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance. E.g. of suitable material: Nitrile.										
Emergency eye wash:	The use of safety goggles with side shields is recommended.										
	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 & CHEMICAL PROPERTIES:											
Appearance:	Cream Liquid										
Odour:	Characteristic odour										
Solubility:	Soluble in water										
pH:	6.5 – 8										
Melting point / Freezing point	No data available										
Initial boiling point and boiling range	No data available										
Flash point:	>97°C at 97.5 kPa Pensky-Martens c.c.										
Evaporation rate:	No data available										
Flammability (solid, gas)	No data available										
Upper/ lower flammability or explosive limits:	No data available										
Vapour pressure:	No data available										
Vapour density:	No data available										
Relative density:	1.103 g/ml										
Partition coefficient: n-octanol/water	No data available										
Auto-ignition temperature:	No data available										
Viscosity:	No data available										
10) Stability & Reactivity:											
Reactivity:	Stable under normal storage conditions.										
Chemical Stability:	When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture.										
Possibility of hazardous reactions:	When heated to decomposition, irritant or dangerous fumes may be emitted.										

Conditions to avoid:	No data available
Incompatible materials:	No data available
Hazardous decomposition product(s):	When heated to decomposition, irritant or dangerous fumes may be emitted.
11) Toxicological Information:	
Acute Toxicity:	
Oral:	LD50 > 2 000 mg/kg, rat.
Dermal:	LD50 > 4 000 mg/kg, rabbit.
Inhalation:	LC50 (4h) >6.32 mg/L, rat.
Skin Corrosion/Irritation:	Non-irritant, rabbit.
Serious Eye Damage/Irritation:	Non-irritant, rabbit.
Respiratory or Skin Sensitization:	Did not cause sensitization on laboratory animals, guinea pigs.
Germ Cell Mutagenicity:	Did not show mutagenic effects in animal experiments.
Carcinogenicity:	Did not show carcinogenic effects in animal experiments.
Reproductive Toxicity:	Did not show reproductive toxicity effects in animal experiments.
STOT-SE:	No data available.
STOT-RE:	No adverse effect has been observed in chronic toxicity tests.
Aspiration Hazard:	No data available.
12) ECOLOGICAL INFORMATION:	
Ecotoxicity:	
Birds:	LD50 Acute oral LD ₅₀ for mallard ducks and bobwhite quail >2000 mg/kg. Dietary LC ₅₀ (5 d) for bobwhite quail and mallard ducks >5200 mg/kg diet.
Fish:	LC ₅₀ (96 h) for rainbow trout 0.47, bluegill sunfish 1.1, carp 1.6, sheepshead minnows 0.66 mg/l.
Daphnia:	For degradate R234886, LC ₅₀ >150 mg/l. EC ₅₀ (48 h) 80 µg/l. EC ₅₀ for degradates: R234886 >180, R401553 >50, R402173 >50 mg/l.
Algae:	EC ₅₀ (120 h) for <i>Selenastrum capricornutum</i> 0.12 mg/l.
Worms:	LC ₅₀ (14 d) for earthworms 283 mg/kg.
Bees:	LD ₅₀ for honeybees (oral) >25 µg/bee; (contact) >200 µg/bee
Persistence and Degradability:	In soil, DT ₅₀ (lab.) 70 d (geometric mean; normalised to 20 °C, pF2; SFO kinetics). In soil, in the dark, up to six identified metabolites were formed; over 120 d, up to 27% of applied radiolabel is evolved as CO ₂ . Dissipation in the field is faster; DT ₅₀ (geometric mean; SFO) 28 d, DT ₉₀ 94 d (best fit, HS kinetics: DT ₅₀ 13 d, DT ₉₀ 236 d). On soil, photolysis DT ₅₀ 11 d. In water-sediment systems (lab., 20 °C, dark), water phase ave. DT ₅₀ 6.1 d (SFO), total system ave. DT ₅₀ 214 d (SFO). Degradation in atmosphere occurs by reaction with hydroxyl radicals (AOP model), DT ₅₀ 2.7 h.
Bio-accumulative Potential:	Does not bioaccumulate
Mobility in Soil:	Azoxystrobin is classified as moderately mobile in soil; average K _{10c} for azoxystrobin c. 430. Field dissipation studies showed that neither azoxystrobin nor its major degradates were typically found in soil below the top 15 cm.
13) DISPOSAL CONSIDERATIONS:	
Waste Disposal:	In accordance with local and national regulations. Do not dispose of waste into the sewer. If circumstances such as wind direction permit, may be incinerated at a suitable incineration plant holding a permit delivered by the competent authorities. Otherwise, dispose of waste by crushing or puncturing and burying in a suitable landfill. Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved chemicals waste disposal facility.
Container Disposal:	Refer to the product label for instructions. If the container is to be refilled, do not rinse with any material or introduce any pesticide other than this product.

	DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE. Do not transport if this container is damaged or leaking. Where possible, recycling is preferable over disposal or incineration. Empty containers should be transported to an approved waste handling site for recycling or disposal in accordance with local or national regulations.
14) TRANSPORTATION INFORMATION:	
Road Transport ADR / IRD:	UN NUMBER: 3082 UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin) Transport Hazard Class: 9 Miscellaneous Dangerous Goods Packaging group: III Labelling no: 9 Environmental Hazards: Not applicable Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling.
Maritime Transport IMDG / IMO:	UN NUMBER: 3082 UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin) Transport Hazard Class: 9 Miscellaneous Dangerous Goods Packaging group: III Labelling no: 9 Environmental Hazards: Marine Pollutant Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling. 
Air Transport ICAO / IATA:	UN NUMBER: 3082 UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin) Transport Hazard Class: 9 Miscellaneous Dangerous Goods Packaging group: III Labelling no: 9 Environmental Hazards: Not applicable Special Precautions for User: Read safety instructions, SDS and emergency procedures before handling.
Transport in Bulk (according to Annex II of MARPOL 73/78 and the IBC Code):	No transport in bulk according to the IBC Code.
15) REGULATORY INFORMATION:	
Safety, health and environmental regulations/legislation specific for the substance/mixture:	For the user of this plant-protective product applies: 'To avoid risks to man and the environment, comply with the instructions for use.' (Directive 1999/45/EC, Article 10, No. 1.2)
Chemical Safety Assessment:	Advice on product handling can be found in sections 7 and 8 of this safety data sheet.
16) OTHER INFORMATION:	
All information and instructions provided in this Safety Data Sheet (SDS) are based on the current state of scientific and technical knowledge at the date indicated on the present SDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.	
It is the responsibility of persons in receipt of this SDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with this product. If the recipient subsequently produces formulation(s) containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this SDS to their own SDS.	

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Abbreviations and acronyms:

1. CAS number: Chemical Abstracts Service number.
2. CLP: Classification, Labelling, Packaging.
3. LD₅₀: Lethal Dose for 50% of the test population.
4. LC₅₀: Lethal Concentration for 50% of the test population.
5. DT₅₀: Half-life.
6. GHS: Globally Harmonised System (of Classification and Labelling of Chemicals).
7. STOT: Specific Target Organ Toxicity
8. SE: Single exposure
9. RE: Repeated exposure

Literature References:

- GHS: www.ccohs.ca/oshanswers/chemicals/ghs.html
- ECHA: <https://echa.europa.eu/search-chemicals>