


FORTRESS ELITE L10732 (Act 36 of 1947)

1) PRODUCT AND COMPANY IDENTIFICATION	
Product name:	FORTRESS ELITE
Other means of identification:	Azoxystrobin 60 g/L, Chlorothalonil 600 g/L SC
Chemical Name:	<u>Azoxystrobin(IUPAC):</u> methyl (E)-2-{2-[6-(2-cyano-phenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate <u>Chlorothalonil (IUPAC):</u> tetrachloroisophthalonitrile
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 TYGERBERG:021 931 6129 RED CROSS 021 689 5227 RAPID SPILL RESPONSE 0800 775 3305 GRIFFON POISON CENTRE: 082 446 8946
2) HAZARDS IDENTIFICATION:	
Classification of the substance/mixture:	Acute Toxicity (Oral) Category 4 Acute Toxicity (Inhalation) Category 2 Eye Damage Category 1 Skin Sensitization Category 1 Carcinogenic Toxicity Category 2 Aquatic Acute Category 1 Aquatic Chronic Category 1
Label Elements: Globally Harmonized System, EU (GHS):	Pictograms:  Signal word: Danger <u>Hazard Statements:</u> H302: Harmful if swallowed.

According to Directive 67/548/EEC No. 1272/2008 [CLP]

H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H318: Causes serious eye damage.
H319: Causes serious eye irritation.
H330: Fatal if inhaled.
H331: Toxic if inhaled.
H335: May cause respiratory irritation.
H351: Suspected of causing cancer.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long-lasting effects.

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 mist/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.
P405: Store locked up.

Hazard Symbols:

N: dangerous for the environment
Xn: Harmful
C: Corrosive
T: Toxic

R-phrases(s):

R22: Harmful if swallowed.
R23: Toxic by inhalation
R36/37/38: Irritating to eyes, respiratory system and skin.
R43: May cause sensitization by skin contact.
R45: May cause cancer.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases(s):

S2: Keep out of the reach of children.
S7/9: Keep container tightly closed and in a well-ventilated place.
S23: Do not breathe gas/fumes/vapour/spray.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28: After contact with skin, wash immediately with plenty of water and soap.
S36/39: Wear suitable protective clothing and eye/face protection.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S56: Dispose of this material and its container to hazardous or special waste collection points.
S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.
S63: In case of accident by inhalation: remove casualty to fresh air and keep at rest.

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)	Classification according to 67/548/EEC
Azoxystrobin	60 g/L	131860-33-8		Acute Tox Cat. 3 (H331) Aquatic Acute Cat. 1 (H400) Aquatic Chronic Cat 1 (H410)	
Chlorothalonil	600 g/L	1897-45-6	217-588-1	Eye Dam. Cat. 1 (H318) Skin Sens. Cat. 1 (H317) Acute Tox Cat. 2 (H330) STOT SE Cat. 3 (H335) Carc. Cat. 2 (H351) Aquatic Acute Cat. 1 (H400) Aquatic Chronic Cat. 1 (H410)	
Monoethylene Glycol	48 g/L	107-21-1	203-473-3	Acute Tox. 4 (H302)	Xn, R22; S2
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 immediately.		
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.		
Eye contact:			Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Remove contact lenses. Seek medical assistance immediately.		
Ingestion			Do NOT induce vomiting. For advice, contact the National Poisons Centre. Seek medical assistance immediately.		
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.		
5) FIRE-FIGHTING MEASURES:					
Extinguishing Media:			Fine water spray, alcohol-resistant 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:	The fire will produce black smoke which contains hazardous products of combustion. Exposure to decomposition products may be a health hazard.				
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:	For personal protection see Section 8.				
Environmental precautions:	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.				
Methods and material for containment and cleaning up:	Wear protective clothing. Clear area of unprotected personnel. Contain and absorb liquid spills with inert material, 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.				
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, well-ventilated area away from foodstuffs, fertilisers and seeds. Keep away from children or uninformed persons.				
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. Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. If airborne mists/vapours are generated, use local exhaust ventilation controls. Where necessary, seek additional occupational hygiene advice.				
Control Parameters: Occupational exposure limits:	<table><tr><td>Ingredient</td><td>CAS#</td><td>Limit</td><td>Basis</td></tr></table>	Ingredient	CAS#	Limit	Basis
Ingredient	CAS#	Limit	Basis		

	Azoxystrobin	131860-33-8	2 mg/m ³	8 h TWA
	Chlorothalonil	1897-45-6	0.1 mg/m ³	8 h TWA
<u>PERSONAL PROTECTIVE EQUIPMENT:</u>				
Clothing:	Consult supplier to confirm that the equipment is suitable. Employee must wear appropriate chemical resistant protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance. Wash with soap and water after removal of protective clothing. Decontaminate clothing before re-use or use disposable equipment.			
Respiratory protection:	Use a self-contained breathing apparatus in the case of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.			
Gloves:	Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance. Gloves should be certified to an appropriate standard and should have a minimum breakthrough time that is appropriate to the duration of exposure.			
Eye protection:	Use tight-fitting chemical safety goggles and a face shield if eye contact is possible.			
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 & CHEMICAL PROPERTIES:				
Form:	Liquid, Suspension concentrate			
Colour:	Cream white to tan			
Odour:	Characteristic odour			
Solubility:	Suspends in water			
pH:	6.5			
Odour threshold:	Not available			
Melting point / Freezing point	Not available			
Initial boiling point and boiling range	Not available			
Flash point:	>100°C at 768 mmHg			
Evaporation rate:	Not available			
Flammability (solid, gas)	Not available			
Upper/ lower flammability or explosive limits:	Not explosive			
Vapour pressure:	Not available			
Vapour density:	Not available			
Relative density:	1.285			
Partition coefficient: n-octanol/water	Not available			
Auto-ignition temperature:	>650°C			
Viscosity:	Not available			
10) STABILITY & REACTIVITY:				

Reactivity: Chemical Stability: Possibility of hazardous reactions: Conditions to avoid: Incompatible materials: Hazardous decomposition product(s):	Stable under normal conditions. When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture. Hazardous polymerisation does not occur. Not available Not available When heated to decomposition, irritant or dangerous fumes may be emitted.
11) TOXICOLOGICAL INFORMATION:	
Acute Toxicity: Oral: Dermal: Inhalation:	Acute LD ₅₀ > 3 000 mg/kg, rat. Acute LD ₅₀ > 5 000 mg/kg, rabbit. A: LC ₅₀ (4h) >4.5 mg/L, rat. C: LC ₅₀ (4h) > 3000 mg/ m ³ , rat
Skin Corrosion/Irritation:	Slight irritant, rabbit.
Serious Eye Damage/Irritation:	Moderate irritant, rabbit.
Respiratory or Skin Sensitization:	Did not cause sensitization on laboratory animals, guinea pigs.
Germ Cell Mutagenicity:	Not available.
Carcinogenicity:	May cause cancer.
Reproductive Toxicity:	Not available.
STOT-SE:	May cause respiratory irritation.
STOT-RE:	Not available.
Aspiration Hazard:	Not available.
12) ECOLOGICAL INFORMATION:	
Persistence:	
<u>Ecotoxicity: Azoxystrobin</u> Birds: Fish: Daphnia: Algae: Worms: Bees: <u>Ecotoxicity: Chlorothalonil</u> Birds: Fish:	Acute oral LD ₅₀ for mallard ducks and bobwhite quail >2000 mg/kg. LC ₅₀ (5 d) for bobwhite quail and mallard ducks >5200 mg/kg diet. LC ₅₀ (96 h) for rainbow trout 0.47, bluegill sunfish 1.1, carp 1.6, sheepshead minnows 0.66 mg/l. 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. EC ₅₀ (120 h) for <i>Selenastrum capricornutum</i> 0.12 mg/l. LC ₅₀ (14 d) for earthworms 283 mg/kg. (oral) >25 µg/bee; (contact) >200 µg/bee. Acute oral LD ₅₀ for bobwhite quail >2000 mg/kg.

Daphnia: Algae: Worms: Bees:	LC ₅₀ (96h) for Rainbow trout 0.039 mg/L, fathead minnow 0.023 mg/L and Bluegill sunfish 0.059 mg/L EC ₅₀ (48h) 0.070 mg/L. EC ₅₀ (120 h) <i>Selenastrum capricornutum</i> 0.21 mg/L. LC ₅₀ (14 d) for earthworms > 404 mg/kg soil. LD ₅₀ Oral > 63 µg/bee; Contact > 101 µg/bee.
Persistence and Degradability:	Azoxystrobin: Rapidly degraded in soil. Chlorothalonil: In aerobic (n=7) and anaerobic (n=1) soil studies, DT ₅₀ 0.3–21 d (pF2, 20–24 °C) and 10 d, respectively. Stable to hydrolysis at pH 5–7; DT ₅₀ 38 d (pH 9, 22 °C). Degradation is faster in biotic aquatic systems; typical DT ₅₀ (aerobic) ≤2.5 d. A wide variety of metabolites are formed, which are, in turn, degraded further.
Bio-accumulative Potential:	Azoxystrobin: Low potential for bioaccumulation; typical K _{oc} c. 500
Mobility in Soil:	Azoxystrobin: Azoxystrobin and its degradates have low to moderate mobility in soil Chlorothalonil: K _{oc} 850–7000 ml/g, indicating low mobility to immobility.
13) DISPOSAL CONSIDERATIONS:	
Waste Disposal:	In accordance with local and national regulations. Recycling is preferred to disposal or incineration. If recycling is not practicable, waste must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Wastes resulting from the use of this product may be disposed of on site or at an approved chemicals waste disposal facility. Do not contaminate water, food or feed by disposal. Do not dispose of waste into sewers.
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.
14) TRANSPORTATION INFORMATION:	
UN NUMBER: 3082 Road Transport ADR/ RID: Class: 9 Miscellaneous Dangerous Goods Packaging group: III Labelling no: 9 Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin, Chlorothalonil) Maritime Transport IMDG / IMO: Class: 9 Miscellaneous Dangerous Goods Packaging group: III Labelling no: 9	

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin, Chlorothalonil)

Air Transport ICAO / IATA:

Class: 9 Miscellaneous Dangerous Goods

Packaging group: III

Labelling no: 9

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin, Chlorothalonil)

MARINE POLLUTANT



Road Transport ADR / IRD:

UN NUMBER: 3082

UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Azoxystrobin, Chlorothalonil)

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, Chlorothalonil)

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, Chlorothalonil)

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:	
<p>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.</p> <p>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. The information contained herein is provided in good faith but makes no representation as to its comprehensiveness or accuracy. A properly trained person using this product intends this document only as a guide to the appropriate handling of the material. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.</p> <p>MERIDIAN AGRITECH MAKES NO REPRESENTATION OR WARRANTIES, EITHER EXPRESSES OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANT ABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MERIDIAN AGRITECH (PTY) LTD WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.</p> <p>Date of issue: 11/10/2019</p> <p>Abbreviations and acronyms:</p> <ol style="list-style-type: none"> 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. TWA: Time-weighted average. <p>Literature References:</p> <ul style="list-style-type: none"> • GHS: www.ccohs.ca/oshanswers/chemicals/ghs.html • ECHA: https://echa.europa.eu/search-chemicals 	