



## Safety Data Sheet

### FORTRESS PRO - Reg. No: L 10638 (Act No 36 of 1947)

Date of issue: 05/09/2016

1) IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER.	
Product name:	Fortress Pro
Other means of identification:	AC 280 SC
UN number:	3082
Recommended use:	Fungicide
Restrictions on use:	Agriculture
Distributed by:	MERIDIAN AGRITECH P O BOX 436 MODDERFONTEIN TEL 011 8228509 FAX 0866901386 MOBILE: 0834006056 <a href="http://www.agritech.co.za">www.agritech.co.za</a>
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
Chemical Name:	<u>Azoxystrobin (IUPAC): methyl (E)-2-[2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl]-3-methoxyacrylate</u> <u>Cyproconazole (IUPAC): (2RS,3RS;2RS,3SR)-2-(4-chlorophenyl)-3-cyclopropyl-1-(1H-1,2,4-triazol-1-yl)butan-2-ol</u>
2) Classification of the substance / mixture:	
Classification of the product:	Xn, N; R22, R23, R50/53; R63 Full text of R-phrases: see section 15.
Label elements:	Hazard symbols: Xn – Harmful N – Dangerous for the environment Health Hazard    Signal Word: Harmful
Health effects: eyes:	May cause mild irritation.
Health effects: skin:	May cause mild irritation. Does not cause sensitization.
Health effects: ingestion	Harmful if swallowed.

<b>Health effects: inhalation</b>	May cause mild irritation.
<b>Health effects: Other</b>	No evidence was obtained of mutagenic, carcinogenic, teratogenic, neurotoxic or reproductive effects for azoxystrobin. Cyproconazole showed no evidence of mutagenic, carcinogenic or neurotoxic effects. Maternal and fetal toxicity were observed at high dose levels in studies on rats.

### 3) COMPOSITION / INFORMATION ON INGREDIENTS:

Mixture:

Chemical name	Composition	CAS No.	EC No.	Classification according to Regulation EC 1272/2008 (CLP)	Classification according to 67/548/EEC
Azoxystrobin	200 g/L	131860-33-8		Acute Tox. Cat 3 (H331) Aquatic Acute Cat 1 (H400) Aquatic Chronic Cat 1 (H410)	T, N; R23, R50/53; S1/2, S27, S45, S60, S61
Cyproconazole	80 g/L	94361-06-5		Acute Tox. 4 (H302) Repr. Cat. 2 (H361d) Aquatic Acute Cat. 1 (H400) Aquatic Chronic Cat. 1 (H410)	Repr. Cat. 3; R63 Xn; R22 N; R50-53
Denatonium benzoate in Monoethylene glycol	50 g/L			Acute Tox. Cat. 4, H302	

Full text of R- and S-phrases: see section 15.

### 4) First Aid Measures:

<b>Eye contact:</b>	Immediately flush eyes with plenty of water. Remove contact lenses, if worn, and flush eyes with water for at least 20 minutes holding eyelids open. Seek medical assistance immediately.
<b>Skin contact:</b>	Remove contaminated clothing, leather items and shoes and gently wipe off excess chemical. Wash affected areas thoroughly with non-abrasive soap and water. Do not rub the skin. Seek medical attention if irritation persists. Wash contaminated clothing before re-use.
<b>Ingestion:</b>	If swallowed <b>DO NOT</b> induce vomiting. Never give anything via mouth to an unconscious person. <b>Seek medical advice immediately.</b>
<b>Inhalation:</b>	Remove victim to well ventilated area and loosen clothing around the neck. Keep victim warm and at rest. Qualified personnel should administer oxygen if breathing is difficult. If breathing is irregular or has stopped, administer artificial respiration. Immediately seek medical attention.
<b>Most important symptoms and effects, acute and delayed:</b>	Poisoning symptoms were non-specific in laboratory animals.
<b>Indication of immediate medical attention and special treatment needed: Advice to physician</b>	Symptomatic treatment and supportive therapy as indicated, no known specific antidote.

### 5) Fire-Fighting Measures:

<b>Suitable extinguishing media:</b>	Water spray, alcohol-resistant foam, carbon dioxide (CO <sub>2</sub> ), dry powder.
<b>Unsuitable extinguishing media:</b>	Water jet, due to contamination/spreading risk.

<p><b>Special hazards arising from the substance or mixture:</b></p> <p><b>Fire-fighting:</b></p> <p><b>Protective clothing:</b></p>	<p>Dense black smoke, containing hazardous products of combustion, will be produced by the fire due to the combustible organic components that are contained in the product. Combustion or thermal decomposition will evolve toxic and irritant vapours. Exposure to decomposition products may be a health hazard.</p> <p>Remove spectators from surrounding area. Use a recommended extinguishing agent. Fight fire from a maximum distance using unmanned hose holders or monitor nozzles. Remove container from affected area if possible without risk. Dike extinguishing media with sand or earth for later disposal, do not allow to reach water or sewer systems. Dispose of debris and contaminated extinguishing water according to regulations. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid pollution of waterways and ground water.</p> <p>Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.</p>
<p><b>6) Accidental Release Measures:</b></p>	
<p><b>Personal precautions:</b></p> <p><b>Environmental precautions:</b></p> <p><b>Cleaning procedure:</b></p> <p><b>Disposal:</b></p>	<p>Do not inhale vapour or spray. Avoid contact with skin and eyes. For personal protection see section 8.</p> <p>Do not contaminate waterways, drains and groundwater. If contamination of waterways, drains, rivers or lakes is unavoidable, warn the local authorities (Police and Department of Water/Environmental affairs) immediately.</p> <p>Do not eat, drink or smoke during the clean-up process. Clear area of unprotected personnel and animals. Wear protective gear as mentioned in section 8 below. Reposition any leaking containers so as to minimize further leakage. Contain the spill and stop leak provided it is safe to do so. Soak up minor spills with suitable absorbent, non-combustible material such as sand, sawdust, diatomaceous earth, etc. Shovel or sweep absorbed material and collect in a suitable container which can be labelled and sealed for disposal according to local regulations. Do not flush spilled material into drains or waterways. Should spilled product come into contact with water, dike water and dispose of together with spilled material. Clean contaminated areas and equipment thoroughly with water containing detergent and collect washings for disposal. For large spills, dike spill area and pump off product. Collect washings to avoid any contamination of surface and ground water, water supplies and drains. Deal with spillages immediately.</p> <p>Used absorbent material and washings should be stored in labelled, sealable containers until these can be disposed of according to local regulations. Open burning or dumping of this material is prohibited.</p>
<p><b>7) Handling &amp; Storage:</b></p>	
<p><b>Handling:</b></p>	<p>Product will irritate eyes. Avoid contact with eyes and skin. Harmful if swallowed. Do not breathe in fumes or spray. Ensure adequate ventilation. Suitable protective equipment should be used as a preventative measure during spraying and mixing. Do not eat, drink, smoke or apply cosmetics while using. Before removing gloves, clean thoroughly with a non-abrasive soap and water. Wash hands thoroughly with non-abrasive soap and water after handling, and before eating, tobacco use, drinking, or using the toilet. Protective clothing should be removed immediately after use washed before reuse. Do not apply directly to areas where surface water is present or to intertidal areas below</p>

<p><b>Storage:</b></p>	<p>the mean high water mark.</p> <p>Store under lock and key in original container tightly closed and in a dry, cool, well-ventilated area. Keep away from children, uninformed persons and animals. Do not contaminate other pesticides, fertilisers, water, food or feed by storage or disposal. DO NOT store in direct sunlight for prolonged periods. Local regulations should be complied with.</p>
<p><b>8) Exposure Control / Personal Protection:</b></p>	
<p>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.</p> <p><b><u>PERSONAL PROTECTIVE EQUIPMENT:</u></b>  <b>Clothing:</b></p> <p><b>Gloves:</b></p> <p><b>Eye protection:</b></p> <p><b>Respiratory protection:</b></p> <p><b>Emergency eye wash:</b></p>	<p>Employee must wear appropriate protective (impervious) clothing to prevent prolonged skin exposure with this substance.</p> <p>Employee must wear appropriate chemical-resistant gloves, preferably PVC or nitrile gloves, to prevent prolonged skin contact with this substance.</p> <p>The use of safety goggles or full-face shield is recommended.</p> <p>Wear suitable respiratory equipment, especially during spraying, such as a face mask.</p> <p>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.</p>
<p><b>9) Physical &amp; Chemical Properties:</b></p>	
<p><b>Form:</b>  <b>Colour:</b>  <b>Odour:</b>  <b>Odour threshold:</b>  <b>pH:</b>  <b>Melting point / Freezing point</b>  <b>Initial boiling point and boiling range</b>  <b>Flash point:</b>  <b>Evaporation rate:</b>  <b>Flammability (solid, gas)</b>  <b>Upper/ lower flammability or explosive limits:</b>  <b>Vapour pressure:</b>  <b>Vapour density:</b>  <b>Relative density:</b>  <b>Solubility(ies)</b>  <b>Partition coefficient: n-octanol/water</b>  <b>Auto-ignition temperature:</b>  <b>Viscosity:</b></p>	<p>Liquid, suspension concentrate  Off-white  Characteristic  No data available  7.6  No data available  No data available  &gt;100°C  No data available  Not flammable  Non-flammable  No data available  No data available  1.042 g/ml  Suspends in water  No data available  No data available  No data available</p>
<p><b>10) Stability &amp; Reactivity:</b></p>	
<p><b>Reactivity:</b></p> <p><b>Chemical stability:</b></p> <p><b>Hazardous decomposition product(s):</b></p>	<p>Stable under normal storage conditions.</p> <p>When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture. Thermally and chemically stable.</p> <p>Toxic and irritant vapours will be produced through combustion or thermal decomposition.</p>

<b>Conditions to avoid:</b>	Protect from extreme temperatures, direct sunlight, open flames and sources of ignition.
<b>Incompatible materials:</b>	None known.

### 11) Toxicological Information:

Acute:  
 Oral LD50 > 2 000 mg/kg  
 Dermal LD50 > 5 000 mg/kg  
 Inhalation LC50 (4h): Azoxystrobin: 0.96 mg/L  
 Cyproconazole: >5.65 mg/L

Skin irritation : Slight irritant.  
 Eye irritation : Slight irritant.  
 Sensitisation : Not a sensitiser.  
 Other :

No evidence was obtained of mutagenic, carcinogenic, teratogenic, neurotoxic or reproductive effects for azoxystrobin. Cyproconazole showed no evidence of mutagenic, carcinogenic or neurotoxic effects. Maternal and fetal toxicity were observed at high dose levels in studies on rats.

### 12) Ecological Information:

#### Information below based on active ingredient:

**Bees:** Cyproconazole: Contact LD50 (24 h) > 100 µg/bee; Oral LD50 (24 h) >1000 µg/bee  
 Azoxystrobin: LD50 for honeybees (oral) > 25 µg/bee; (contact) > 200 µg/bee.

**Birds:** Cyproconazole: Acute oral LD<sub>50</sub> for bobwhite quail 131 mg/kg (geomean of 2 tests). Dietary LC<sub>50</sub> (5 d) for bobwhite quail 856 (geomean of 2 tests), mallard ducks 851 mg/kg diet.

Azoxystrobin: Acute oral LD<sub>50</sub> for mallard ducks and bobwhite quail >2000 mg/kg. Dietary LC<sub>50</sub> (5 d) for bobwhite quail and mallard ducks >5200 mg/kg diet.

**Fish:** Cyproconazole: LC50 (96h) carp 20 mg/L, trout 19 mg/L, bluegill sunfish 21 mg/L.

Azoxystrobin: LC50 (96h) carp 1.6 mg/L, Rainbow trout 0.47 mg/L, bluegill sunfish 1.1 mg/L, sheepshead minnows 0.66 mg/L.

**Daphnia:** Cyproconazole: LC<sub>50</sub> (48h) >26 mg/L.

Azoxystrobin: EC<sub>50</sub> (48h) 0.28 mg/L.

**Algae:** Cyproconazole: EC<sub>50</sub> (96h) for *Scenedesmus subspicatus* 0.077 mg/L.

Azoxystrobin: EC<sub>50</sub> (72h) for *Pseudokirchneriella subcapitata* 0.18 mg/L; EC<sub>50</sub> (72h) for diatom *Navicula pelliculosa* 0.028 mg/L.

**Worms:** Cyproconazole: LC<sub>50</sub> (14d) for earthworms 335 mg/kg dry soil.

Azoxystrobin: LC<sub>50</sub> (14d) for earthworms 283 mg/kg dry soil.

#### Other aquatic species:

Azoxystrobin: LC<sub>50</sub> (96 h) for mysid shrimps 0.055 mg/l; EC<sub>50</sub> (48 h) for Pacific oysters 1.3 mg/l; EC<sub>50</sub> (14 d) for *Lemna gibba* 3.2 mg/l; NOEC (25 d) for chironomid larvae 0.2 mg/l.

#### Other beneficial species:

Azoxystrobin: LR<sub>50</sub> for predatory mites *Typhlodromus pyri* >1500 g/ha; LR<sub>50</sub> for parasitoid wasps *Aphidius rhopalosiphii* >1000 g/ha.

**Cyproconazole:** Degrades moderately quickly, DT<sub>50</sub> c. 4 mo. (lab., n=8), c. 40 d (field, n=37).. Soil adsorption Freundlich K<sub>oc</sub> 364 ml/g. Hydrolytically and photolytically stable. In aquatic systems (n=2) DT<sub>50</sub> 5.6 d (water), >1 y (whole system). No accumulation and leaching potential.

**Azoxystrobin:** Dissipation in the field is faster; DT<sub>50</sub> (geometric mean; SFO) 28 d, DT<sub>90</sub> 94 d (best fit, HS kinetics: DT<sub>50</sub> 13 d, DT<sub>90</sub> 236 d). On soil, photolysis DT<sub>50</sub> 11 d. Azoxystrobin is classified as moderately mobile in soil; average K<sub>foc</sub> 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:** Waste should not be re-used. Do not contaminate rivers, dams, water sources, food or feed by disposal. Open dumping or burning of this pesticide is prohibited. Wastes resulting from the use of this product should be disposed of according to local regulations. Do not dispose of undiluted chemical on site.

**Container Disposal:** Refer to the product label for instructions. Triple rinse empty containers before disposal in the following manner: Invert the container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed to a drip. Thereafter, rinse the container three times with a volume of water equal to a third of that of the container volume. Add rinsing to the contents of the spray tank before destroying the container in the prescribed manner. Empty containers should not be burnt; puncture and flatten containers and dispose at a licensed landfill site according to local regulations. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Prevent contamination of water sources, food or feed by disposal. DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE. If recycling, replace cap and take containers to the designated recycling point. If containers cannot be recycled, they should be disposed of together with the

waste chemical according to local regulations.

#### 14) Transportation Information:

UN Number: 3082

Road transport ADR/RID

Class: 9

Packing group: III

Hazard label: 9, EHSM

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Azoxystrobin, Cyproconazole)

Maritime transport IMDG/IMO

Class: 9

Packing group: III

Hazard label: 9, EHSM

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Azoxystrobin, Cyproconazole)

Marine pollutant

Air transport IATA/ICAO

Class: 9

Packing group: III

Hazard label: 9, EHSM

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Azoxystrobin, Cyproconazole)

#### 15) Regulatory Information:

**Symbols:** Xn – Harmful

N - Dangerous for the environment

#### **Risk – Phrase:**

R22: Harmful if swallowed.

R23: Toxic by inhalation.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R63 – Possible risk of harm to the unborn child.

#### **Safety – Phrase:**

S1/2: Keep locked up and out of the reach of children.

S27: Immediately take off all contaminated clothing.

S36/37 Wear suitable protective clothing and gloves.

S45: In case of accident or if you feel unwell, seek medical advice immediately.

S60 This material and its container must be disposed of as hazardous waste.

S61: Avoid release to the environment. Refer to special instructions/Safety datasheets.

#### **Hazard Statements**

H302 Harmful if swallowed.

H331: Toxic if inhaled.

H361d: Suspected of damaging fertility or the unborn child.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long-lasting effects.

#### 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.

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