

Safety Data Sheet

Flustar WG L8419 (Act 36 of 1947)

1) PRODUCT AND COMPANY IDENTIFICATION	
Product name:	FLUSTAR WG
Other means of identification:	Flusilazole 200 g/kg WG
Chemical Name:	Flusilazole: bis(4-fluorophenyl)(methyl)(1H-1,2,4triazol-1-ylmethyl)silane
Recommended use:	Fungicide
Restrictions on use:	Agriculture
UN No:	3077
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 GRIFFON POISON CENTRE: 082 446 8946.
2) HAZARDS IDENTIFICATION	
Classification of the substance/mixture:	Acute Toxicity (Oral) Category 4 Acute Toxicity (Dermal) Category 4 Acute Toxicity (Inhalation) Category 4 Carcinogenicity Category 2 Reproductive Toxicity Category 1 Aquatic Chronic Category 2
Label Elements: Globally Harmonized System, EU (GHS):	<p>Pictograms:</p>  <p>Signal word: Danger</p> <p>Hazard Statements: H302: Harmful if swallowed. H351: Suspected of causing cancer. H360D: Suspected of damaging the unborn child. H411: 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. P262: Do not get in eyes, on skin, or on clothing. P263: Avoid contact during pregnancy/while nursing. P270: Do not eat, drink or smoke when using the product. 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)</p>

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

P362+P364: Take off contaminated clothing and wash it before reuse.

P405: Store locked up.

Hazard Symbol(s):

Xn – dangerous to health

Xi - Irritant

N – dangerous for the environment

R-phrases(s):

R22: Harmful if swallowed.

R36: Irritating to eyes.

R38: Irritating to skin.

R40: Limited evidence of a carcinogenic effect.

R61: May cause harm to the unborn child.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases(s):

S2: Keep out of reach of children.

S3/7: Keep container tightly closed in a cool place.

S13: Keep away from food, drink and animal feeding stuffs.

S20/21: When using, do not eat drink or smoke.

S24/25: Avoid any inhalation, contact with skin and eyes.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

medical advice immediately (show label where possible).

S35: This material and its container must be disposed of in a safe way.

S36/37: Wear suitable protective clothing and gloves.

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

S53: Avoid exposure – obtain special instructions before use.

S57: Use appropriate containment to avoid environmental contamination.

3) COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Not applicable

3.2 Mixtures:

Chemical name	Concentration	CAS No.	EC No.	Classification according to Regulation EC 1272/2008 (CLP)
Flusilazole	200 g/kg	85509-19-9	617-717-5	Acute Tox 4 (H302) Carc. 2 (H351) Aquatic Chronic 2 (H411) Repr. 1B (H360D)

4) FIRST AID MEASURES

Description of First-Aid Measures:

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek Medical attention

Skin contact:

In case of contact, immediately wash skin with soap and plenty of water. Wash contaminated clothing before reuse.

Eye contact:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek Medical attention

Ingestion:

If swallowed, immediately give two glasses of water and induce vomiting. Never give anything by mouth to an unconscious person. Seek Medical attention.

Most important symptoms and effects, both acute and delayed:

None known.


Indication of any immediate medical attention and special treatment needed:

No specific requirements. Treat symptomatically.

5) FIRE-FIGHTING MEASURES	
Extinguishing Media:	Water spray, dry powder, foam or CO ₂ .
Unsuitable Extinguishing Media:	Do not use high volume water jet, due to contamination risk.
Specific Hazards arising from the substance/mixture:	Not a fire and explosion hazard. Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.
Fire Fighting:	<p>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.</p> <p>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.</p> <p>On small fires, if the area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contamination hazard.</p> <p>On small fires, if area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contamination hazard.</p>
Protective clothing:	Full protective clothing and self-contained breathing apparatus
6) ACCIDENTAL RELEASE MEASURES	
Personal precautions, protective equipment and emergency procedures:	<p>Avoid contact with skin and eyes. Review FIRE AND EXPLOSION HAZARDS and HANDLING SECTIONS before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.</p> <p>For personal protection see Section 8.</p>
Environmental precautions:	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.
Methods and material for containment and cleaning up:	<p>Wear protective clothing. Clear area of unprotected personnel.</p> <p>Shovel or sweep up. Never return to container for reuse. Scoop into bags or boxes with plastic or aluminium shovel.</p> <p>Wash area with water and detergent and absorb with further inert material. If spill does enter waterways contact the local authority. Spilled product cannot be re-used and must be disposed of in a chemical waste disposal facility. If containers cannot be recycled, they should be disposed of together with the waste chemical.</p>
7) HANDLING & STORAGE	
Precautions for Safe Handling:	<p>Handling: DO NOT consume food, drink or tobacco in the areas where they may become contaminated with this material.</p> <p>Attacks eyes and may irritate skin. Avoid contact with eyes and skin. DO NOT inhale dust. Protect eyes while using. Wash hands after use. After each day's use, wash face shield or goggles and contaminated clothing.</p>
Conditions for Safe Storage, including any incompatibilities:	Keep container tightly closed. Store in closed original containers in a cool, well ventilated area out of direct

	sunlight. DO NOT contaminate water, other pesticides, fertilisers, food or feed with this product. Keep away from heat, sparks and flames.										
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>Flusilazole</td><td>85509-19-9</td><td>0.5 mg/m³</td><td>8 hr TWA AEL (Du Pont)</td></tr></table>		Ingredient	CAS#	Limit	Basis	Flusilazole	85509-19-9	0.5 mg/m ³	8 hr TWA AEL (Du Pont)
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<u>PERSONAL PROTECTIVE EQUIPMENT:</u>											
Clothing:		Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.									
Respiratory		Use only with adequate ventilation.									
Gloves:		Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance.									
Eye protection:		The use of a face shield or safety goggles with side shields is recommended. Protect eyes while using.									
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:		Granules									
Colour:		Light brown									
Odour:		Slight lignin sulphonate									
Solubility:		Dispersible in water									
pH:		9 at 20°C (at 10 g/L H2O)									
Odour threshold:		Not available									
Melting point / Freezing point		53-55°C (flusilazole)									
Initial boiling point and boiling range		Not available									
Flash point:		Not applicable									
Evaporation rate:		Not available									
Flammability (solid, gas)		Not available									
Upper/ lower flammability or explosive limits:		Lower: 0.173 vol. %									
Vapour pressure:		0.039 (25°C) (flusilazole)									
Vapour density:		Not available									
Relative density:		0.58 g/cm ³									
Partition coefficient: n-octanol/water		Log K _{ow} 3.74 (pH 7) (flusilazole)									
Auto-ignition temperature:		525°C									
Decomposition Temperature:		Not available									
Viscosity:		Not applicable									
10) STABILITY & REACTIVITY											
Reactivity:		No hazardous reactions if stored and handled as indicated.									
Chemical Stability:		Stable at normal temperatures and storage conditions.									
Possibility of hazardous reactions:		None known.									
Conditions to avoid:		Keep away from heat, sparks and flames.									
Incompatible materials:		No incompatibilities reasonably foreseeable									
Hazardous decomposition product(s):		Decomposition will not occur. There is a possibility of generating hazardous gases during a fire due to presence of F and CN groups.									
11) TOXICOLOGICAL INFORMATION											
Acute Toxicity:											

Oral:	LD50 (rat): > 4000 mg/kg (male), 3000 mg/kg (female)
Dermal:	LD50 (rabbit): > 2000 mg/kg
Inhalation:	4 hr Inhalation LC50 (rat): > 4.3 mg/L
Skin Corrosion/Irritation:	May irritate skin, slightly toxic by contact. Classified as a skin irritant but not a skin sensitiser.
Serious Eye Damage/Irritation:	Classified as an eye irritant according to NOHSC. Attacks eyes. Causes substantial but temporary eye injury.
Respiratory or Skin Sensitization:	Not a skin sensitiser.
Germ Cell Mutagenicity:	No data available.
Carcinogenicity:	Suspected of causing cancer.
Reproductive Toxicity:	Suspected of damaging the unborn child.
STOT-SE:	No data available.
STOT-RE:	No data available.
Aspiration Hazard:	No data available.
12) ECOLOGICAL INFORMATION	
Ecotoxicity:	
Birds:	LD50 for mallard ducks >1590 mg/kg.
Fish:	LC50 (96 h) for rainbow trout 1.2 mg/l and bluegill sunfish 1.7 mg/l.
Daphnia:	LC50 (48 h) 3.4 mg/l.
Algae:	Not available.
Worms:	LC50 for earthworms 388 mg/kg soil.
Bees:	Not toxic to bees. LD50 33.8 µg/bee (oral) and 165 µg/bee (contact).
Persistence and Degradability:	Results of several different studies under varying environmental conditions indicate average DT ₅₀ 95 d.
Bio-accumulative Potential:	It was concluded that bis(4-fluorophenyl)(methyl)silanol (IN-F7321, the methyl silanol) and 4fluorophenyl(methyl)silanediol are the predominant residues in poultry tissues and eggs arising from the phenyl-labelled compound and that triazole is the main residue from the triazole label, except in fat where flusilazole is the primary residue from the triazole label.
Mobility in Soil:	It was observed that over 92% of the radioactivity is confined to the top 8 cm of soil over the test period, and that the predominant residues in this segment are flusilazole and its silanol metabolite IN-F7321. It was also concluded, the strong adsorption to the top layers of soil, the lack of residues exceeding 0.01 mg/kg in the 24-36 cm soil depths and the weak leaching potential indicated in other studies as evidence that residues in ground water were unlikely. While the data indicate that over 92% of the radioactivity remains in the top 8 cm of the silt loam soil investigated, and indeed that residue levels are extremely low in the 24-36 cm depths, it also shows an increasing penetration by low levels of radioactivity over the test period in this soil type. While the adsorption of this persistent pesticide to soil is strong, it was noted that uptake of low residue levels can occur in rotational crops and that the leaching potential would be less for silt loams (as in this study) than for more sandy soils. Because the silt loam study was under worst-case
13) DISPOSAL CONSIDERATIONS	
Waste Disposal:	In accordance with local and national regulations. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. 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 waste disposal facility.
Container Disposal:	Refer to the product label for instructions. Container Refilling and Disposal: 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	
Road Transport ADR / IRD:	UN NUMBER: 3077 UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Flusilazole) 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: 3077 UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Flusilazole) 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: 3077 UN Proper Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Flusilazole) 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.</p> <p>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: 12/09/2007 Date of revision: 22/04/2016, 11/01/2021</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. STOT: Specific Target Organ Toxicity 8. SE: Single exposure 	

9. RE: Repeated exposure
10. TWA: Time-weighted average
11. AEL: Airborne Exposure Limit

Literature References:

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