

FLOURISH 500 EC

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: FLOURISH 500 EC
Other identifier: Spiroxamine 500 EC
Recommended use: Fungicide
Restrictions on use: Agriculture, small-scale farming

Supplier: Universal Crop Protection (Pty) Ltd
Co. Reg. No.: 1993/008184/07
 PO Box 801,
 Kempton Park, 1620, 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. HAZARDS IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	Hazard categories	H-statements
Health		
Oral	Acute Toxicity 4	H302
Dermal	Acute Toxicity 4	H312
	Skin Irritation 2	H315
	Skin Sensitivity 1	H317
Eye	Eye Damage 1	H318
Inhalation	Acute Toxicity 4	H332
Reproductive Toxicity	Reproductive Toxicity 2	H361d
Single Target Organ Toxicity (STOT)	STOT Repeated Exposure 2 (eyes)	H373
Environment		
Aquatic acute	Aquatic acute 1	H400
Aquatic chronic	Aquatic chronic 1	H410

The most important adverse effects:
Physiochemical effects: None known.
Human health effects: Causes serious eye damage. Suspected of damaging the unborn child.

Label elements:



Signal word: Danger

Hazard statements:
 H302: Harmful if swallowed.
 H312: Harmful in contact with skin.
 H315: Causes skin irritation.
 H317: May cause an allergic skin reaction.
 H318: Causes serious eye damage.
 H332: Harmful if inhaled.
 H361d: Suspected of damaging the unborn child.
 H373: May cause damage to eyes.
 H400: Very toxic to aquatic life.
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:
 P202: Do not handle until all safety precautions have been read and understood.
 P264: Wash hands and face thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P271: Use only outdoors or in a well-ventilated area.
 P273: Avoid release to the environment.
 P280: Wear impervious rubber gloves and boots, protective clothing and chemical safety goggles.
 P302+P352: IF ON SKIN: Wash with plenty of water and non-abrasive soap.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
 P308+P313: If exposed or concerned: Get medical attention.
 P310: IF IN EYES: Immediately call a POISON CENTRE.
 P332+P313: If skin irritation occurs: Get medical advice.
 P333+P313: If skin irritation or rash occurs: Get medical advice.
 P362+P364: Take off contaminated clothing and wash it before reuse.
 P391: Collect spillage.
 P405: Store locked up.
 P501: Dispose of contents/container in accordance with local regulations.

Other hazards:
 None known.

Toxicity:
 Classification according to GHS: 4
 Classification according to WHO: Group II
 Classification according to GPIC: Category II

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3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture
Composition:

Spiroxamine

CAS 118134-30-8

Conc (m/v%) 50%

Classification EC 1272/2008 Acute Toxicity 4 (H302), Acute Toxicity 4 (H312), Skin Irritation 2 (H315), Skin Sensitivity 1 (H317), Acute Toxicity 4 (H332), Reproductive Toxicity 2 (H361d), Specific Target Organ Toxicity Repeated Exposure 2 (H373), Aquatic Acute 1 (H400), Aquatic Chronic 1 (H410).

Calcium Benzene-sulfonic acid

CAS 84989-14-0

Conc (m/v%) <20%

Classification EC 1272/2008 Skin Irritation 2 (H315), Eye Damage 1 (H318), Aquatic Chronic 3 (H412).

Ethoxylated tristyrylphenol

CAS 99734-09-5

Conc. (m/v%) < 15%

Classification EC 1272/2008 Aquatic Chronic 3 (H412).

Phenylmethanol

CAS 100-51-6

Conc. (m/v%) < 25%

Classification EC 1272/2008 Acute Toxicity 4 (H302), Acute Toxicity 4 (H332).

4. FIRST AID MEASURES

Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure.

Inhalation: Remove source of contamination and move victim to fresh air. Keep affected person warm and at rest. Administer oxygen if breathing is difficult. If breathing has stopped, give artificial respiration. **Seek medical attention if irritation persists.**

Skin: Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Obtain medical attention if irritation persists.

Eyes: Flush eyes with clean water for at least 15 – 20 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. **Seek medical attention.**

Ingestion: Do not induce vomiting due to solvent. Seek medical attention or call a poison control centre for treatment advice. Rinse mouth with water. Do not give anything by mouth to an unconscious person. If the person is alert, rinse mouth thoroughly with water. If vomiting occurs spontaneously, keep persons head lower than hips to avoid aspiration.

Anticipated acute effects: Causes skin irritation.

Anticipated delayed effects: May cause an allergic skin reaction. May cause damage to eyes.

Most important symptoms / effects: Suspected of damaging the unborn child.

Advice to physician: Treat symptomatically and supportively. No specific antidote known. Gastric lavage followed by activated charcoal (carbo medicalis) and sodium sulfate. **Do not induce vomiting.**

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Carbon dioxide, water fog, foam or sand.

Unsuitable Extinguishing Media: High volume water jet. Use a water jet only to cool heated containers.

Specific hazards: In the event of fire, the formation of hydrogen cyanide, carbon monoxide and nitrogen oxides must be anticipated.

Special fire-fighting procedures: Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Remain upwind of fire. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal. Avoid pollution of waterways by run-off from the site.

Personal protective equipment: Wear NIOSH / MSHA approved self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with eyes. Do not breathe in spray mist or vapours. Ventilate area of spill or leak, especially in contained areas.

Protective equipment: Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill involving this product.

Emergency procedures: Alert firefighting personnel, evacuate unprotected personnel and animals.

Environmental Precautions: Prevent spilled product from entering sewers, waterways or ground water. This product is classified as very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. Any spillages or uncontrolled discharges into watercourses should be reported immediately to the police and the Department of Water and Environmental Affairs.

Methods and Materials for Containment: Contain spilled product by diking area with sand or earth.

Methods and Materials for Clean-up: Cover contained spill with an inert absorbent material such as sand,

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universal binder, earth, silica gel or other appropriate material. Vacuum, scoop, or sweep up material and place the material into a clean, dry, sealable container. Label containers with the contents and dispose of according to local regulations. Do not place spilled material back in original container. Do not re-use spilled material. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. See section 13 for disposal considerations.

7. HANDLING AND STORAGE

Handling:

Precautions for safe handling: Harmful if swallowed. Avoid contact with skin and eyes. Ensure adequate ventilation during handling and use. Do not inhale spray mist or vapours. Do not handle broken packages without protective equipment. Immediately clean up spills that occur during handling. Keep containers closed when not in use. In the case of contact with the product refer to First Aid Measures – Section 4.

General occupational hygiene: Practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used.

Storage:

Conditions for safe storage: Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original, labelled container, tightly closed in an isolated, dry, cool and well-ventilated area. Avoid excess heat. Not to be stored next to foodstuffs, feed and water supplies. Avoid cross contamination with other pesticides and fertilisers.

Incompatible substances and mixtures: Refer to product label.

Packaging material: Fluorinated plastic containers.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentration No occupational exposure limits have been determined for the significant ingredients in this product.

Engineering Controls:

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OELs or other specified exposure limits. Local exhaust ventilation is preferred. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

Personal Protective Equipment:

Respiratory Protection: Wear an organic cartridge respirator suitable for protection from mists/ vapours of pesticides if product will be used in an area that is not well ventilated.

Hand Protection: Employee must wear appropriate chemically resistant gloves e.g. nitrile rubber gloves to prevent contact with this mixture.

Eye Protection: Wear a face shield when handling the concentrate and when applying the product. The use of safety goggles is recommended if a face shield is not used. Contact lenses are not protective eye devices.

Skin and Body Protection: Employees must wear appropriate protective clothing, rubber boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Emergency eyewash: 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: Brown liquid, emusifiable concentrate.

Odour: Paraffin like.

Odour threshold: Not available.

pH (1% aqueous dilution): 8.8.

Melting point: Not available.

Freezing Point: Not available.

Boiling Point: Not available.

Flash Point: 100 °C.

Flammability: Not available.

Upper / lower explosion limits: Not available.

Vapour Pressure (mm Hg): Not available.

Relative Vapour Density: Not available.

Density / Relative density: 0.994 g/ml (20 °C).

Solubility: Emulsifies in water.

n-octanol / water partition coefficient: Not available.

Auto-ignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity: Not available.

10. STABILITY AND REACTIVITY

Chemical stability: The product is stable for two years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50 °C, preferably below 30 °C, and not for prolonged periods in direct sunlight.

Reactivity: None known.

Possibility of hazardous reactions: Unlikely to occur.

Conditions to avoid: Extreme heat or exposure to flames and direct sunlight.

Incompatible materials: Strong oxidizers, strong acids, plastics.

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Hazardous decomposition products: None under normal conditions. In a fire, formation of hydrogen cyanide, oxides of carbon, nitrogen can be expected.

Worms:
 LC₅₀ (14d) *Eisenia fetida* >500 mg/kg soil

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

- Calculated according to GHS
 - Oral LD₅₀** > 780 mg/kg (rat)
 - Dermal LD₅₀** > 1800 mg/kg (rat)
 - Inhalation LC₅₀** (4h) 3.8 mg/l (rat)
 - Skin Irritation** Causes skin irritation.
 - Eye Damage:** May cause serious eye damage.
 - Skin Sensitization:** May cause and allergic skin reaction.
 - Respiratory Sensitization:** Not available.
 - Reproductive cell mutagenicity:** Not available.
 - Carcinogenicity:** Not available.
 - Reproductive toxicity:** Suspected of damaging the unborn child.
 - Specific target organ toxicity – single exposure:** Not available.
 - Specific target organ toxicity – repeated exposure:** May cause damage to eyes.
 - Aspiration hazard:** Not available.
 - Chronic Effects:** Not available.
- POTENTIAL ADVERSE EFFECTS:**
- Inhalation:** Harmful by inhalation.
 - Ingestion:** Harmful if swallowed.
 - Skin:** Harmful in contact with skin.

ENVIRONMENTAL EFFECTS

Based on information for the active ingredient

Readily degraded in soil, ultimately to CO₂; oxidation on the *tert*-butyl moiety and dealkylation of the amine are the primary reaction steps. The dealkylated compounds were either further oxidised to the corresponding acids or further degraded to a ketone metabolite. Soil DT₅₀ (lab. And field) in the range 35-64 d. The relevant residue in soil and air is the parent compound. Relatively stable to hydrolysis at pH 9; direct photo degradation in water is not a significant means of degradation. K_{oc} 659-6417 ml/g. In water/sediment studies, spiroxamine bound rapidly to the sediment; DT₅₀ in the supernatant water 12-13 h. Thoroughly degraded in the water/sediment systems, ultimately to CO₂. In water, the relevant residue for quantitation, besides the parent compound, is the *N*-oxide only.

Plants: Extensively metabolised in spring wheat, grapes and bananas. Oxidation occurred preferentially in the tertiary amine group (formation of the *N*-oxide) and also, to a minor extent, in the *tert*-butyl group (e.g. hydroxy compound). Some metabolites were formed by dealkylation of the amine or cleavage of the spiroketal structure. Based on the results of metabolism studies in plants, unchanged spiroxamine was the representative compound for the residue definition. A separate common moiety method for wheat samples accounted for parent compound and all metabolites containing the 4-*tert*-butylcyclohexyl moiety.

Persistence and degradability: Not expected to be very persistent.

Bio-accumulative potential: Not expected to bioaccumulate.

Mobility in soil: Slightly mobile.

Other adverse effects: Not determined.

12. ECOLOGICAL INFORMATION

This product is considered very toxic to aquatic organisms with long lasting effects.

ECOTOXICITY DATA:

Spiroxamine

Fish:		
LC ₅₀ (96 h)	Rainbow trout	18.5 mg/l
	Bluegill sunfish	7.13 mg/l
	Zebrafish	2.41 mg/l
Daphnia:		
EC ₅₀ (48 h)		3.0 mg/l
Algae:		
EC ₅₀ (72 h)	<i>S. subspicatus</i>	0.012 mg/l
	<i>P. subcapitata</i>	0.019 mg/l
E _b C ₅₀ (72h)	<i>S. subspicatus</i>	0.0032 mg/l
	<i>P. subcapitata</i>	0.00542 mg/l
Birds:		
Acute oral LD ₅₀	Bobwhite quail	565 mg/kg
Dietary LC ₅₀ (8d)	Mallard ducks	>5000 mg/kg diet
	Bobwhite quail	>5000 mg/kg diet
Bees:		
LD ₅₀ contact		4.2 µg/bee
LD ₅₀ oral		>100 µg/bee

13. DISPOSAL CONSIDERATIONS

Waste: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product 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. The product may be taken to a registered waste disposal site or incineration plant. **Container:** Emptied containers retain product residues. Do not re-use the empty container for any other purpose. Triple rinse empty containers by inverting 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 third of that of the container. Add the rinsings to the

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contents of the spray tank before destroying the container in the prescribed manner. Destroy the container by perforating and flattening and dispose of through an approved waste dump site, incineration plant or recycling company. Observe all labelled safeguards until container is destroyed.

14. TRANSPORT INFORMATION

UN Number: 3082

Road Transport ADR / ORD:

Class: 9
 Packaging group: III
 UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Spiroxamine 500 g/l)

Maritime Transport IMDG / IMO:

Class: 9
 Packaging group: III
 UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Spiroxamine 500 g/l)

Marine pollutant (Y/N): Yes

Air Transport IATA / ICAO:

Class: 9
 Packaging group: III
 UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Spiroxamine 500 g/l)

Special / Environmental Precautions: Wedge drums tightly to avoid movement.

Transport in bulk: Refer to MARPOL 73/78, Annex II and the IBC code.

15. REGULATORY INFORMATION

Safety, health and environmental regulations / legislation for the mixture:

OHSA 1993 Regulations for Hazardous Chemical Substances.

Relevant information regarding restrictions: None.

EU regulation: Regulation EC1272/2008 (EU-GHS/CLP)

Other national regulations: None.

Chemical Safety Assessment carried out? No

16. OTHER INFORMATION

Packaging: Packed in 100, 200, 500 ml and 1, 5, 10, 15, 20, 25 & 50 litres fluorinated plastic containers and labelled according to the South African regulations and guidelines.

Other hazard statements, abbreviations and explanations:

Conc.: Concentration in mass per volume.

H412: Harmful to aquatic life with long lasting effects.

IATA: International Air Transport Association.

IBC: International Bulk Chemical.

ICAO: International Civil Aviation Organization.

IMDG: International Maritime Dangerous Goods

IMO: International Maritime Organization.

LD₅₀ value: The median lethal dose or the amount of a toxic agent that is sufficient to kill 50 percent of a population within a certain period of time.

OEL/RL: Occupational exposure limit-recommended limit.

TWA: Time-weighted average – The average exposure over a specified period, usually a nominal eight hours.

ST/STEL: Short-term exposure limits.

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 uses 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

Compiled: July 2019

Reviewed: July 2019

Revision no.: (1)

Next revision date: July 2024

For detailed information on revisions, contact the Registration holder.