SAFETY DATA SHEET

Avenger 525

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product Name: Avenger 525
Other identifier: Cymoxanil 300 g/kg + Famoxadone 225 g/kg WDG
Pesticide Classification: Fungicide
Restrictions on use: Agriculture

Supplier
Enviro Bio-Chem (Pty) Ltd
Co. Reg. No.: 2013/194774/07
44 Kerk Street, Lichtenburg
North West, South Africa 2740

Registration Holder
Enviro Crop Protection (Pty) Ltd,
Co. Reg. No.: 2007/027855/07
44 Kerk Street, Lichtenburg
North West, South Africa 2740

Telephone: +27 12 006 0063
Fax: 086 541 7948
Website: www.envirobiochem.co.za

24 Hr Emergency Number: Spillage: 0861 000 366

In case of Poisoning:
Griffon Poison Information Centre: +27 82 446 8946
Tygerberg Hospital: (+27 21) 931 6129
Poison Emergency Enquiries: (+27 21) 689 5227

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2. HAZARD IDENTIFICATION

UN GHS, Regulation EC 1272/2008 [EU-GHS/CLP] EU & SANS 10234:2008		
Hazard classes	**Hazard categories**	**Hazard statements**
Reproduction toxicity	Category 2	H361fd
STOT RE	Category 2	H373
Aquatic Toxicity Acute	Category 1	H400
Aquatic Toxicity Chronic	Category 1	H410

The most important adverse effects:
The most important adverse physiochemical effects: None Known.
The most important adverse human health effects: Suspected of damaging fertility or unborn child. May cause damage to organs through prolonged and repeated exposure (blood, thymus).

Label elements:

Signal word: Warning

Hazard statements:
H360d: Suspected of damaging fertility and the unborn child.
H373: May cause damage to organs through prolonged and repeated exposure (blood, thymus).

H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:
P102: Keep out of reach of children.
P103: Read label before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P264: Wash hands, forearms, 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.
P304 + P 340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P317: Get emergency medical help.
P318: If exposed or concerned, get medical advice.
P391: Collect spillage.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local/regional/ national/international regulation.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances/ Mixture: Mixture

Composition:

Chemical Name	CAS	Conc. (m/m%)	Classification EC 1272/2008
Famoxadone	131807-57-3	23 %	STOT RE (Category 2) (H373) Aquatic Acute (category 1) (H400) Aquatic Chronic (Category 1) (H410)
Cymoxanil	57966-95-7	30 %	Acute Toxicity (Category 4) (H302) Skin Sensitization (Category 1) (H317) STOT RE (Category 2) (H373) (blood, thymus) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Reproduction (Category 2) (H361fd)
Sodium dodecyl sulfate	151-21-3	< 5 %	Acute Toxicity (Category 4) (H302) Skin Irritation (Category 2) (H315) Eye Damage (Category 1) (H318) Aquatic Chronic (Category 3) (H412)
Sodium lignosulfonate	7783-20-2	< 10 %	Eye irritation (Category 2) (H319)

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

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 and consult a doctor / poison control centre.

In case of inhalation: Avoid inhalation of mist spray. If inhaled, remove to fresh air. Administer artificial respiration if breathing is stopped. Seek medical attention.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention if symptoms persist.

In case of eye contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. If eye symptoms (redness, irritation, or pain) persist refer patient to ophthalmologist for examination of eyes.

In case of ingestion: Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to avoid aspiration. Keep patient at rest and transport to nearest medical facility for further treatment. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband.

Anticipated acute effects: None known.

Anticipated delayed effects: Suspected of damaging fertility or unborn child. May cause damage to organs through prolonged and repeated exposure (blood, thymus).

Most important symptoms/effects: None known.

Advice to physician: Treat symptomatically and supportively. No specific antidote known.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use carbon dioxide, dry powder, or alcohol-resistant foam for small fires and water fog or foam can be used for larger fires or cooling of unaffected stock but avoid the accumulation of polluted run-off from the site.

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

Specific hazards: Hazardous decomposition products in case of fire: Carbon monoxide (CO), Nitrogen oxides (NOx)

Hazardous decomposition products in case of fire: Refer to Section 10: Stability and Reactivity.

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. Keep upwind. 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 and skin. Do not breathe in spray or fumes. Ventilate area of spill, 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: Do not touch spilled material. Prevent spilled product from entering sewers, waterways or ground water. This product is classified as very toxic to aquatic organisms with 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/Environmental Affairs.

Methods and Materials for Containment: Contain spilled product by diking area with sand or earth. Collect in suitable and properly labelled containers. Absorb with materials such as sand, earth, vermiculite, or diatomaceous earth

Methods and Materials for Clean-up: Contain spilled product by picking up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal. Do not create a powder cloud by using a brush or compressed air. 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. To decontaminate the spill area, tools and equipment, wash with water and suitable detergent. Collect washings and add to the drums already collected. Do not flush spilled material or washings into drains or waterways. See section 13 for disposal considerations.

7. HANDLING AND STORAGE

Handling:

Precautions for safe handling: Do not use near source of sparks or open flame. Ensure adequate ventilation during handling and use. 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: Handle in accordance with good industrial hygiene and safety practice. Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid inhalation. Avoid contact with eyes, skin, or clothing.

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.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits:

Occupational exposure limits (OEL): No information available.

Biological exposure indices (BEI): No information available.

Additional exposure limits under the conditions of use: No information available.

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: For most well-ventilated conditions, no respiratory protection should be needed. If used in a poorly ventilated area (airborne concentrations exceed exposure limits), use a NIOSH approved air-purifying respirator.

Hand Protection: The use of chemically protective gloves is recommended to prevent against skin contact. Examples of preferred glove barrier materials include Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, Polyvinyl alcohol, Polyvinyl chloride.

Eye Protection: The use of chemical safety goggles is recommended to prevent against eye contact. Contact lenses are not protective eye devices.

Skin and Body Protection: Employee must wear appropriate protective clothing; boots, hat and equipment to prevent repeated or prolonged skin contact with this substance.

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.

Environmental exposure controls: Prevent product from entry into sewers and water courses.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Granule
Colour	Brown
Odour	Odourless
Odour threshold	No data available
pH	6.0 – 8.0
Melting point / freezing point (° C)	Not applicable
Boiling point (° C)	No data available
Flash point (° C)	No data available
Evaporation rate	No data available
Flammability	Not flammable
Upper /lower flammability limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density (25°C)	No data available
Water solubility (g/l) at 20°C	Not applicable
Partition coefficient: n-octanol/water partition coefficient	No data available
Auto-ignition temperature (° C)	No data available
Decomposition temperature (° C)	No data available
Viscosity, dynamic (mPa s)	No data available
Explosive properties	Not an explosive hazard
Oxidising properties	No data available
Explosive limits	No data available

10. STABILITY AND REACTIVITY

Chemical Stability: None known.

Reactivity: None known.

Possibility of Hazardous Reactions: May support combustion at elevated temperatures.

Conditions to Avoid: High temperatures, exposure to direct sunlight.

Incompatible Materials: Avoid mixing with nitric acid, sulfuric acid, strong oxidizing agent and reducing agent.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Calculated according to GHS:

Acute Oral LD_{50} (rat): > 2000 mg/kg

Acute Dermal LD_{50} (rat): > 2000 mg/kg

Acute Inhalation LC_{50} (rat, 4 hr): > 2800 mg/m^3

Skin Irritation: Slight irritation to skin.

Eye Damage/Irritation: Slight irritation to eye.

Skin Sensitization: Weak skin sensitizer.

Respiratory Sensitization: Not classified.

Reproductive cell mutagenicity: Not classified.

Carcinogenicity: Not carcinogenic.

Reproductive toxicity: Suspected of damaging fertility and the unborn child

Specific target organ toxicity – single exposure: Not classified.

Specific target organ toxicity – repeated exposure: May cause damage to organs through prolonged and repeated exposure (blood, thymus).

Aspiration hazard: Not classified.

Chronic Effects (other targets e.g. developmental): Not classified

12. ECOLOGICAL INFORMATION

The product is classified as a marine pollutant.

ECOTOXICITY DATA:

Active ingredient: Famoxadone CAS No. 131807-57-3

Fish	
LC_{50} (96 hr)	rainbow trout 0.011 mg/l & bluegill sunfish 0.013mg/L
Daphnia	
LC_{50} (48 hr)	0.012 mg/l
Algae	
Static test E_bC_{50} (72h)	0.022 mg/l for (*Selenastrum capricomutum*)
Birds	
Acute oral LD_{50}	>2250 mg/kg Bobwhite quail
Dietary LC_{50} 5 days	>5260 mg/kg diet Bobwhite quail and Mallard ducks
Bees	
Toxicity to bees LD_{50} (oral)	>63 µg/bee.
Toxicity to bees LD_{50} (contact)	>25 µg/bee.
Worms	
LC_{50} (14d)	470 mg/kg soil (earthworms)

Biodegradability: Famoxadone is readily degraded in soil, with a DT_{50} of approximately 6 days under aerobic conditions and 28 days under anaerobic conditions. Degradation is primarily microbial and involves hydroxylation at the 4′-phenoxyphenyl position and ring opening, resulting in the formation of a glycolic acid derivative. Degradation is further accelerated by light.

Bioaccumulation: No information available.

Mobility: The compound is considered to have low mobility in soil, with a mean K_{oc} of 3632 and a mean K_d of 70 across four soil types, indicating strong adsorption to soil particles and a low potential for leaching.

Active ingredient: Cymoxanil CAS No. 57966-95-7

Fish	
LC_{50} (96 hr)	61 mg/ℓ (rainbow trout); 29 mg/ℓ (bluegill sunfish).
Daphnia	
LC_{50} (48 hr)	27 mg/l
Algae	
Static test EC_{50} (72h)	1.21 mg/l (*Selenastrum capricornutum*)
Birds	
Acute oral LD_{50}	>2250 mg/kg mallard ducks and bobwhite quail
Dietary LC_{50} 8 days	>5620 mg/kg diet bobwhite quail and mallard ducks

Bees
Toxicity to bees LD_{50} (contact) >25 µg/bee.

Worms
LC_{50} (14d) >2208 mg/kg soil (Earthworms)

Biodegradability: Cymoxanil is rapidly degraded in the environment by hydrolysis and photolysis. Half-live in bare soil is 0.9 to 9 days. Though Cymoxanil has low K_d values and would be expected to leach to ground and surface water, the chemical degrades rapidly and not likely to pose a threat to ground and surface waters

Bioaccumulation: The low K_{ow} for Cymoxanil (3.9 to 4.7) indicates a very low potential to bio-accumulate in fish.

Mobility: Cymoxanil is mobile, adsorption K_f 0.29 – 2.86 in four soil types.

13. DISPOSAL CONSIDERATION

Pesticide Disposal: 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.

Package Product Wastes: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is cleaned, reconditioned or destroyed. Thereafter, rinse the container three times with a volume of water equal to a minimum of one third of that of the container. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn or donate the container to any other parties that may use it as a container for food or beverages.

14. TRANSPORT INFORMATION

UN Number 3077

Road Transport ADR/IRD:
Class: 9
Packaging group: III
UN proper Shipping Name: Environmentally Hazardous Substance, solid, N.O.S. (Cymoxanil 300 g/kg + Famoxadone 225 g/kg)

Maritime Transport IMDG/IMO:
Class: 9
Packaging group: III
UN proper Shipping Name: Environmentally Hazardous Substance, solid, N.O.S. (Cymoxanil 300 g/kg + Famoxadone 225 g/kg)

Marine Pollutant (Y/N): Yes

Air Transport IATA/ICAO:
Class: 9
Packaging group: III
UN proper Shipping Name: Environmentally Hazardous Substance, solid, N.O.S. (Cymoxanil 300 g/kg + Famoxadone 225 g/kg)

15. REGULATORY INFORMATION

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

Relevant information regarding authorization: Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. UN Recommendations on the Transport of Dangerous Goods Model Regulations Rev. 21 (2019), Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 8, 2019.

Relevant information regarding restrictions: None.

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

Other national regulations: National Road Traffic Act, 1996 (ACT NO. 93 of 1996). SANS 10228:2012- The identification and classification of dangerous goods for transport by road and rail modes. National Environmental Management Waste Act 59 of 2008.Act 36 of 1947 of the Republic of South Africa. This product is registered under it is a violation of South African law to use this product in any manner inconsistent with its approved labelling. Read and follow all label directions

Chemical Safety Assessment carried out? No

16. OTHER INFORMATION

Note: Read and understand all the information on the product label before using the product.

Other hazard statements, abbreviations and explanations:
H360d: Suspected of damaging fertility and the unborn child.
H373: May cause damage to organs through prolonged and repeated exposure (blood, thymus).
H400: Very toxic to aquatic life.
H410: Very toxic 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

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For detailed information on revisions, contact the registration holder.