

CYPERMETHRIN 200 EC

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE

Product Name: CYPERMETHRIN 200 EC
 Insecticide
UN No.: 3351
Supplier: Universal Crop Protection (Pty) Ltd.
Co. Reg. No.: 1983/008184/07
 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. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: Cypermethrin
Chemical Name: (RS)- α -cyano-3-phenoxybenzyl (1RS,3RS;1RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate (IUPAC)
CAS No.: 52315-07-8
Chemical Family: Pyrethroid
Chemical Formula: C₂₂H₁₉Cl₂NO₃ (Mol. wt.: 416.3)
Use: Non-systemic insecticide with contact and stomach action.
Formulation: **Cypermethrin:** 200 g/l
 Emulsifiable Concentrate
Hazardous ingredients of toxicological concern:

| Ingredient | concern: | % present: |
|--------------|-----------------------------------|------------|
| Cypermethrin | harmful by inhalation & ingestion | 20 % w/v |
| xylene | harmful, irritant | 60-70% w/v |

SYMBOLS: X_n Xi, F
RISK-PHASE(S): R 20/22, R 36/37/38, R 41, R 43, R 50, R 57

3. HAZARD IDENTIFICATION

Toxicity class: WHO II; EPA II (data for technical material). A moderately toxic insecticide.
Likely routes of exposure: Skin and eye contact, ingestion and inhalation.
Eye contact: Minimally toxic. The product may cause moderate to severe irritation and damage.
Skin contact: Minimally toxic. The product may cause moderate irritation. May be a weak skin sensitizer.
Ingestion: Moderately toxic if ingested. See point 4 for symptoms.
Inhalation: Moderately toxic by inhalation. See point 4 for symptoms.

4. FIRST AID MEASURES AND PRECAUTIONS

Pyrethroids can induce **burning, itching or tingling sensations, typically in the face**, and less frequently in other regions of the skin and readily disappear within several hours or 1 day after exposure. **Nasal discharge** and a scratchy throat from inhalation, ataxia, urinary incontinence, convulsions, nervous irritability and tremors may also appear.

Sweating and washing with warm water can exacerbate these abnormal sensations. Transient red papules, congestion and edema of the skin are occasionally seen.

The systemic symptoms in mild cases include dizziness, headache, nausea, anorexia and fatigue, or with signs of listlessness, vomiting and increased stomach secretion, usually resulting in sick leave for more than 1 day.

Inhalation: Remove the source of contamination or move victim to fresh air. The patient should be kept under observation and transported to a health center if necessary.

Skin contact: Remove contaminated clothing, shoes and leather goods. Wash skin gently and thoroughly with cold water and non-abrasive soap.

Eye contact: Immediately flush eyes with a stream of clean water for at least 20 minutes, holding the eyelid(s) open.

Ingestion: If only small amounts have been ingested, or if treatment has been delayed, oral administration of activated charcoal and cathartic probably represents optimal management

Advice on treatment:

1. There is no specific antidote available.
2. Prevention of further absorption in case of pyrethroid overexposure:
 - * Washing the contaminated skin and hair thoroughly.
 - * Removal of vomiting materials.

CYPERMETHRIN 200 EC

MATERIAL SAFETY DATA SHEET

- * Gastric aspiration and lavage with water, or 5% sodium bicarbonate solution, for cases of ingestive poisoning.
- 3. Alleviation of symptoms:
 - * Symptomatic and supportive treatment.
 - * Bed rest until disappearance of symptoms.
- 4. For cases of severe pyrethroid poisoning:
 - * Admission to hospital.
 - * Alleviation of life-threatening effects:
 - **using anti-convulsive treatments (e.g. diazepam) for convulsions.**
 - **maintaining a clear airway, or using assisted ventilation if pulmonary edema occurs.**
- 5. For poisoning induced by pyrethroid and organophosphate mixture:
 - * Sufficient dosage of atropine may be needed; oxygen may also be needed, based on the clinical symptoms, signs and blood cholinesterase measurements. There is no inhibition of blood cholinesterase in patients with acute pyrethroid poisoning. The prognosis of acute pyrethroid poisoning is always better, even in seriously affected patients.
 - * Symptomatic and supportive treatments as above.

NOTE

Occupational acute pyrethroid poisoning has often occurred in spray men working in the fields in summer. Therefore heatstroke, respiratory infection, and food poisoning should be cautiously differentiated. Care should be taken not to misdiagnose cases of acute pyrethroid poisoning by ingestion as acute organophosphorous poisoning, as the smell of pyrethroids is somewhat similar to the organophosphorous pesticides, and pulmonary edema can occur in severely poisoned patients of both kinds of poisoning. To differentiate these two kinds of pesticide poisoning, the exposure history is most important.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard: Product is highly **Flammable** and explosive due to formulant (xylene) content.

Extinguishing agents: Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Contain water used for fire fighting for later disposal.

Firefighting: Remove spectators from surrounding area. Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

Personal protective equipment: Fire may produce irritating or poisonous vapours (toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon), mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.

Environmental precautions: Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

Occupational spill: Remove all sources of flames and sparks. For small liquid spills, soak up with lime, damp earth or sand, or other noncombustible absorbent material and place into containers for later disposal. For large liquid spills, contain the liquid for later disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Do not use near source of sparks or open flame. Harmful by skin or eye contact, inhalation or ingestion. Avoid contact with eyes and skin, and inhalation of spray and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage: Do not store near sources of sparks, flame or heat. Keep under lock and key and out of reach of unauthorized persons, children and animals. Store in its original labeled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

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

CYPERMETHRIN 200 EC

MATERIAL SAFETY DATA SHEET

maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT: If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator: An approved respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing: Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves: Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection: The use of safety goggles is recommended.

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: Clear, yellowish-brown, free flowing emulsifiable concentrate that forms a white emulsion on dilution with water.

Odour: Highly aromatic hydrocarbon (xylene).

Flammability: Extremely **Flammable** (due to xylene).

Explosive properties: Explosive due to xylene solvent.

Flash point: 26°C (Tag Closed Cup method).

Specific gravity: 0.940 g/cm³

Corrosive properties: None to very slight.

Storage stability: Stable for up to 2 years under normal warehouse and field conditions. Stable in neutral and weakly acidic media (optimum stability at pH 4), but hydrolyzed in alkaline media. Stable in light and water. No significant active ingredient degradation occurs after more than 14 days at 54°C (± 1°C) in accelerated storage test. No separation of oils and solids after 7 days at 0°C (± 1°C)

Suspensibility: Not applicable.

Dilution stability: Excellent.

Solubility in organic solvents: (All solubility figures for technical material at 20°C)

chloroform: > 450 g/l

acetone: > 450 g/l

cyclohexanone: > 450 g/l

xylene: > 450 g/l

ethanol: 337 g/l

hexane: 103 g/l

Partition-coefficient in n-octanol / water:

K_{ow} (logP) = 6.6 (data for technical material).

Melting point: 60 to 80°C (data for technical material, depending on purity).

10. STABILITY AND REACTIVITY

Stability: Stable in neutral and acidic media (optimum is pH 4), but hydrolyzed by alkalis. The product is stable in light and water. The product is stable in air.

Incompatibility: Compatible with many insecticides, fungicides and acaricides, but incompatible with alkaline substances.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: 1015 mg/kg in rats.

Acute dermal LD₅₀: > 8 000 mg/kg in rats.

Acute inhalation LC₅₀: (data for technical material)

> 2.5 mg/l of air over 4 hours (rats).

Acute skin irritation: The product may cause moderate irritation.

Acute eye irritation: The product may cause moderate to severe irritation and damage.

Dermal sensitization: The product may be a weak sensitizer.

Carcinogenicity: No human information available.

Teratogenicity: No human information available.

12. ECOLOGICAL INFORMATION

Degradability: Biological degradation is rapid and residues do not accumulate in the environment. In soil, hydrolysis with cleavage of the ester bond occurs within 2 to 4 weeks. This is the primary route of degradation, giving rise to two main metabolites, namely cyclopropane and phenoxybenzyl moieties. Photodegradation plays a minimal role in the breakdown of the product. In river water, rapid degradation occurs, with a half-life of approximately 5 days.

Mobility: The product has low mobility as it strongly adsorbs to soil.

Accumulation: With recommended application rates, it is unlikely that **Cypermethrin** or its degradation products will attain levels of environmental significance.

ECOTOXICOLOGY:

Birds: (data for technical material)

Minimally toxic to birds.

Acute oral LD₅₀: > 10000 mg/kg (mallard ducks).

> 2000 mg/kg (chickens).

Fish: (Data for technical)

Toxic to fish.

LC₅₀ (96 hr): 0.69 µg/l (rainbow trout)

Bees: (data for technical material)

CYPERMETHRIN 200 EC

MATERIAL SAFETY DATA SHEET

Highly toxic to bees.
 LD₅₀ (oral): 0.035 µg/bee
 LD₅₀ (topical): 0.02 µg/bee.
Daphnia: (Data for technical material)
 Very toxic to *Daphnia magna*.
 The 48-hour LC₅₀ is 0.15 µg /ℓ.

13. DISPOSAL CONSIDERATION

Pesticide disposal: Contaminated absorbents, surplus product, etc., should be burned in a high- temperature incinerator (> 1000 °C) with effluent gas scrubbing. Where no incinerator is available, hydrolysis under alkaline conditions (pH 12 or above) is a suitable method to dispose of small quantities of the product. Before disposal of the resultant waste, the material must be analyzed to ensure that the active ingredient has been degraded to a safe level. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

Package product wastes: Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must be punctured and transported to a scrap metal facility for recycling or disposal. **TRIPLE RINSE** empty containers in the following manner: Invert 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 minimum of a third of the volume of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner. Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dumpsite. Prevent contamination of food, feedstuffs, drinking water and eating utensils. Comply with local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 3351
ADR/IRD: 6.1 Subsidiary Risk 3
IMDG/IMO: 6.1 Subsidiary Risk 3
ICAO/IATA: 6.1 Subsidiary Risk 3
PACKING GROUP: III
ROAD/RAIL: pyrethroid pesticide, liquid, toxic, **Flammable**
AIR/IATA: 611 Y611
 pyrethroid pesticide, liquid, toxic, **Flammable**

SEA: pyrethroid pesticide, liquid, toxic, **Flammable**
CONSIDERED A MARINE POLLUTANT.

15. REGULATORY INFORMATION

Symbol: X_n, X_i, F
Indication of danger: Harmful; Irritant, **Flammable**.
Risk phrase(s):
R 20/22 Harmful by inhalation and if swallowed.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 41 Risk of serious damage to eyes.
R 43 May cause sensitization by skin contact.
R 50 Very toxic to aquatic organisms.
R 57 Toxic to bees.
Safety phrases:
S 2 Keep out of reach children.
S 23 Do not breathe vapour/spray.
S 24/25 Avoid contact with skin and eyes.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

16. PACKING AND LABELLING

Packed in fluorinated 1 and 5 litres plastic containers and labeled according to South African regulations and guidelines.

17. OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS 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.

It is the responsibility of persons in receipt of this MSDS 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 the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

18. REFERENCES

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.

CYPERMETHRIN 200 EC

MATERIAL SAFETY DATA SHEET

- *The Pesticide Manual*; Tenth Edition; Editor Clive Tomlin; Crop Protection Publications, 1994.
- *Pestline*; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.

END OF DOCUMENT

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For detailed information on revisions, contact the Registration holder.