

## VILLA CANTRON® SMART 500 SC

## MATERIAL SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE SUBSTANCE

**Product name:** CANTRON® SMART 500 SC  
 Herbicide  
**UN No.:** 3082  
**Supplier:** Villa Crop Protection (Pty) Ltd  
 PO Box 10413  
 Aston Manor, 1630, South Africa  
**Telephone:** (011) 396 2233  
**Fax:** (011) 396 4666  
**Website:** [www.villacrop.co.za](http://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:** MESOTRIONE  
**Chemical Name:** 2-(4-mesyl-2-nitrobenzoyl)  
 cyclohexane-1,3-dione (IUPAC)  
**CAS No.:** [104206-82-8]  
**Chemical Family:** triketone  
**Chemical Formula:** C<sub>14</sub>H<sub>13</sub>NO<sub>7</sub>S  
**Molecular weight:** 339.3  
**Common Name:** GLYPHOSATE  
**Chemical Name:** N- (phosphonomethyl) glycine  
 (IUPAC)  
**CAS No.:** 70901-12-1  
**Chemical family:** Glycine derivative  
**Chemical formula:** C<sub>3</sub>H<sub>7</sub>KNO<sub>5</sub>P  
**Molecular weight:** 207.2  
**Use:** Post-emergence control of weeds  
 in Glyphosate tolerant maize.  
**Formulation:** Mesotrione 50 g/l  
 Glyphosate 450 g/l  
 Suspension concentrate

**Hazardous ingredients of toxicological concern:**

Inert:	Concern:	Present:
Mesotrione	Toxic if swallowed	50

**Glyphosate** Harmful if swallowed 450  
**Symbol:** Xn, N, Xi  
**Indication of danger:** Harmful, Environmentally  
 dangerous, Irritating substance  
**Risk-Phrases:** R25, R36/38, R52/53.

### 3. HAZARD IDENTIFICATION

A low toxicity herbicide.

**Likely routes of exposure:** Skin contact, ingestion and inhalation.

**Skin:** May cause mild irritation.

**Eye:** A moderate irritant. May cause temporary discomfort such as watering and redness of the eyes.

**Inhalation:** May cause irritation of the mucous membranes, respiratory tract, headache and nausea.

**Swallowed:** Toxic if swallowed. It may cause headache, vomiting and nausea.

### 4. FIRST AID MEASURES AND PRECAUTIONS

**Inhalation:** Remove the source of contamination or move person to fresh air. If cough or other respiratory symptoms develop, consult medical personnel. If breathing stops, qualified personnel should administer artificial respiration and immediately seek medical attention.

**Skin contact:** Remove contaminated clothing, shoes and leather goods and do not re-use until thoroughly cleaned or laundered. Wash skin with non-abrasive soap and plenty of water for 15 to 20 minutes. Obtain medical attention if irritation persists.

**Eye contact:** Immediately flush eyes with a stream of clean water or saline solution for at least 20 minutes, holding the eyelid(s) open. Obtain medical attention.

**Ingestion:** Have person sip a glass of water if able to swallow and rinse mouth thoroughly with water. Do not induce vomiting unless told to by a poison control centre or doctor. Never give anything by mouth to an unconscious person. Obtain medical attention immediately.

**Advice on treatment:** There is no specific antidote available. Treat symptomatically. Remove by gastric lavage and catharsis, but not if victim is unconscious. Give oxygen if respiration is depressed.

### 5. FIRE FIGHTING MEASURES

**Fire and explosion hazard:**

**Flash point:** None-water based

**This material is not flammable.**

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**Hazardous products of combustion:** Carbon monoxide (CO), phosphorous oxides (P<sub>x</sub>O<sub>y</sub>) and nitrogen oxides (NO<sub>x</sub>).

**Extinguishing agents:** Extinguish fires with carbon dioxide, foam, dry chemical and water fog. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

**Firefighting:** 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. 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. Use as little water as possible.

Dyke fire control water for later disposal. Do not scatter the material. Avoid pollution of waterways. Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

**Personal protective equipment:** Fire may produce irritating or poisonous vapours, mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus in the positive-pressure mode with a full-face mask when there is a possibility of exposure. Decontaminate emergency personnel with soap and water before leaving the fire area.

### 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 into drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs. Considered as Marine Pollutant.

**Occupational spill:** Remove all sources of flames and sparks. Do not touch-spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

**For small spills:** Soak up with lime, damp earth or sand, or other non-combustible absorbent material and place into containers for later disposal.

**For large spills:** Recover free liquid with explosion proof pumps, absorb residue with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal. If fire potential exists, blanket spill with foam as a precaution. In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind.

To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e. organic solvent, detergent bleach or caustic). Add the solution to the drums already collected. Label drums with its content and dispose of it in accordance with local regulations.

Open burning or dumping of this material is prohibited.

### 7. HANDLING AND STORAGE REQUIREMENTS

**Handling:** Harmful if inhaled or swallowed. Mild irritating to eyes. 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 pesticide 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:** Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry, cool and well-ventilated area. Not to be stored close to foodstuffs, animal feeds 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 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

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personal protective equipment including approved respiratory protection.

**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 face shield is recommended for eye protection.

**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:** Suspension concentrated liquid.

**Colour:** Light beige to dark beige.

**Flammability:** Non-flammable.

**Flash point:** Not applicable.

**Explosion properties:** Not explosive.

**Solubility:** Soluble in water.

**Density:** 1.31 g/ml.

**pH:** 4.1.

### 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal temperatures and pressures.

**Storage stability:** Stable for a period of 2 years under normal warehouse conditions.

**Conditions and Materials to Avoid:** Keep the product in a cool, dry place, at below 30 °C. Protect from sunlight, open flame and sources of heat. Does not polymerize. Product is relatively stable in neutral, weakly acidic and weakly alkaline media, but reacts strongly (and possibly violently) with strong alkalis.

**Hazardous decomposition products:** Toxic oxides of carbon, nitrogen and phosphorus are released when the product decomposes on heating.

### 11. TOXICOLOGICAL INFORMATION

**Acute oral LD<sub>50</sub> rats: (Technical)**

**Mesotrione:** LD<sub>50</sub>: >5000 mg/kg (male & female rats)

**Glyphosate:** > 5 000 mg/kg in rats (calculated)

**Acute dermal LD<sub>50</sub> rats:**

**Mesotrione:** Acute LD<sub>50</sub> >2000 mg/kg (male & female rats)

**Glyphosate:** > 5 000 mg/kg in rats (calculated)

**Acute skin irritation:**

**Mesotrione:** Practically non-irritant to skin.

**Glyphosate:** Not irritating to skin (rabbit).

**Acute eye irritation:**

**Mesotrione:** Mild irritant to eyes (rabbits).

**Glyphosate:** Moderately irritating to eyes (rabbit).

**Dermal sensitisation:**

**Mesotrione:** Not a skin sensitizer (guinea pigs).

**Glyphosate:** Not a skin sensitizer.

**Inhalation:**

**Mesotrione:** LC<sub>50</sub> (4 h) for male and female rats >5 mg/l.

**Glyphosate:** LC<sub>50</sub> (4 hours): > 5.27 mg/l (potassium salt)

**Mutagenicity:**

**Mesotrione:** No concern for mutagenicity.

**Glyphosate:** Animal studies did not detect any mutagenic effects.

**Reproductivity:**

**Mesotrione:** Not available.

**Glyphosate:** Reproductive changes in test animals only occur at very high doses. It is unlikely that glyphosate would produce effects in humans.

**Teratogenicity:**

**Mesotrione:** Not available.

**Glyphosate:** Animal studies did not detect any teratogenic effects.

**Carcinogenicity:**

**Mesotrione** is classified as "not likely to be carcinogenic to humans" based upon lack of evidence of carcinogenicity in rats and mice.

**Glyphosate:** Animal studies did not detect any carcinogenic effects

### 12. ECOLOGICAL INFORMATION

**Mobility, Degradability & Accumulation:**

**Mesotrione:**

**Plants:** Key metabolites in animals, plants and soil include MNBA [4-(methylsulfonyl)-2-nitrobenzoic acid] and AMBA [2-amino-4-(methylsulfonyl) benzoic acid]. Environmental fate may be determined by soil pH and half-life as the only important parameters.

**Soil/Environment:** Stable to hydrolysis under sterile conditions at pH 5-9, with <10% degradation after 30 d (25 °C). Mesotrione is not persistent in water and soil. Mobility and persistence are of the greatest concern in cold climates with low pH soils. Mesotrione degradates are mobile, thus they have the potential to reach groundwater and/or surface water.

Mesotrione is not persistent in water and soil as indicated by the photolysis, aerobic and anaerobic soil metabolism and terrestrial field dissipation studies. Mobility and persistence are of the greatest concern in cold climates with low pH soils.

**Glyphosate:** Moderately persist in soil, with estimated half-life of 47 days. Microbes are primarily responsible for breakdown.

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Glyphosate is strongly adsorbed to suspended organic and mineral matter in water, and broken down primarily by microbes. Half-life ranges from 12 days to 10 weeks.

The product is practically immobile in soil. It is strongly adsorbed to most soil types, except very light sandy soils below 10% clay. However, it does not leach appreciably and has low potential for runoff.

The product shows little or no tendency to bio-accumulate and poses no long term threat to wildlife.

### ECOTOXICOLOGY:

**Mesotrione** is practically non-toxic to avian species, small mammals, and aquatic species. It is considered relatively non-toxic to bees. Non-target plants may be at risk from its use. There are no concerns for Mesotrione for terrestrial or aquatic endangered animals.

#### Birds:

##### **Mesotrione Technical:**

LD<sub>50</sub> Bobwhite quail: > 2000 mg/kg  
 Mallard ducks: > 5200 mg/kg

##### **Glyphosate Potassium salt**

#### **Non-toxic**

LD<sub>50</sub> Bobwhite quail: > 2241 mg a.e/kg

#### Fish:

##### **Mesotrione Technical:**

LC<sub>50</sub> (96 h): Bluegill sunfish & rainbow trout >120 mg/ℓ

##### **Glyphosate Potassium salt**

#### **Non-toxic**

LC<sub>50</sub> (96h): Trout: >1227 mg a.e/ ℓ

#### Bees:

##### **Mesotrione Technical:**

Relatively non-toxic to honey bees.

##### **Glyphosate Potassium salt**

#### **Non-toxic**

LD<sub>50</sub> (48h) Oral & Dermal: > 100 g a.e/bee

#### Daphnia:

##### **Mesotrione Technical:**

L(E)C<sub>50</sub> (48 h, static) 900 mg/ℓ

##### **Glyphosate Potassium salt**

LC<sub>50</sub> (48h): > 1227 mg a.e/ ℓ

##### **Mesotrione Technical:**

#### Earthworm:

NOEL ≥1000 mg/kg

#### Algae:

L(E)C<sub>50</sub> (72 h, static) for *Selenastrum capricornutum* 4.5 mg/ℓ

##### **Glyphosate Potassium salt**

**Other beneficial organisms:** No effect on carabid beetles. Harmless to slightly harmful to green lacewing, parasitoid species, mites / spiders and insects. Moderately harmful to *Bembidion lampros*.

### 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 reprocessed. Never pour untreated waste or surplus products 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.

**Container disposal:** Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

**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 that 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: 3082**

#### **Road Transport ADR/RID:**

Class: 9  
 Packaging group: III  
 Shipping name: Environmentally Hazardous Substance, Liquid, N.O.S. (Mesotrione 50 g/ℓ + Glyphosate 450 g/ℓ)

#### **Maritime Transport IMDG/IMO: MARINE POLLUTANT**

Class: 9  
 Packaging group: III  
 Shipping name: Environmentally Hazardous Substance, N.O.S. (Mesotrione 50 g/ℓ + Glyphosate 450 g/ℓ)

### 15. REGULATORY INFORMATION

**Symbol:** Xn, N, Xi

**Indication of danger:** Harmful, Environmentally dangerous, Irritating substance

**Risk-Phrases:** R22, R36/38, R52/53, R54.

#### **Risk phrase(s):**

**R 22** Harmful if swallowed.

**R 36/38** Irritating to eyes and skin.

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<b>R 52/53</b>	Harmful to aquatic organisms may cause long-term adverse effects in the aquatic environment.
<b>R 54</b>	Toxic to flora.
<b>Safety phrases:</b>	
<b>S 1/2</b>	Keep locked up and out of reach children.
<b>S 13</b>	Keep away from food, drink and animal feeding stuffs.
<b>S 20/21</b>	When using do not eat or drink animal feeding stuffs.
<b>S 24/25</b>	Avoid contact with skin and eyes.
<b>S 36/37/39</b>	Wear suitable protective clothing, gloves and eye/face protection.
<b>S45</b>	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
<b>S 60</b>	This material and its container must be disposed of as hazardous waste.
<b>S 61</b>	Avoid release to the environment. Refer to special instructions/safety data sheets.

### 16. OTHER INFORMATION

**Packaging:** Packed in 1, 5, 10, 20 and 25 litres plastic containers and labelled according to South African regulations and guidelines.

**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 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.