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# STARPLEX 83 CC

## Material Safety Data Sheet

Revised on: 1 January 2017

Revision number 2

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### 1. Substance/preparation and company identification

#### ULTRAWEED LAWN

Use: Domestic, Agriculture, Herbicide

Company:

Starplex 83 CC  
Reg. No. 2004/01564/23  
P.O. Box 14374  
BREDELL 1623  
SOUTH AFRICA  
TEL: (011) 979-4246/7

Emergency contact numbers

Tygerberg Poison Center: +2721 931 6129  
Griffon Poison Information Centre - 082 446 8946

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### 2. Composition/information on ingredients

Chemical nature

Hazardous ingredients

Dicamba	120 g/l
2,4-D	180 g/l
MCPA	175.5 g/l

R phrases

Risk of serious damage to eyes.  
Harmful in contact with skin.  
Harmful if swallowed

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### 3. Hazard identification

#### Main Hazard

Extreme irritation and corrosive effect to eyes of rabbits. Serious risk of eye damage.

#### Flammability

Slight fire hazard if near or exposed to open flames.

#### Chemical hazard

Phytotoxicity to adjacent crops, because of drift. Avoid drift.

### 4. First-aid measures

#### General advice:

Contact with skin, eyes and clothing should be avoided. Remove any contaminated clothing. If difficulties occur:

Obtain medical attention. Show container, label and/or safety data sheet to physician.

#### If inhaled:

Keep patient calm, remove to fresh air, and seek medical attention.

#### On skin contact:

If contact with skin occurs, immediately wash with plenty of soapy water. If irritation develops, seek medical attention.

#### On contact with eyes:

Affected eyes should be washed immediately for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

#### On ingestion:

Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention.

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### 5. Fire-fighting measures

Suitable extinguishing media:

Water spray, water fog, carbon dioxide, foam

Specific hazards:

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

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Further information:

In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow product to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

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## 6. Accidental release measures

Personal precautions:

Use personal protective clothing. Avoid contact with the skin, eyes and clothing. Remove contaminated clothes, undergarments and shoes immediately.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods for cleaning up or taking up:

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.

Cleaning operations should be carried out only while wearing breathing apparatus. Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labelled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

## 7. Handling and storage

### Handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

The product is combustible. Vapours may form ignitable mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

### Storage

Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect against moisture. Protect from direct sunlight.

Storage stability:

Storage duration: 24 Months

Protect from temperatures above: 40 °C

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Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

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## 8. Exposure controls and personal protection

### Occupational exposure limits

Dicamba:

ADI (acceptable daily intake) = not available; TWA 2001; TWA 1000 mi/mm; TWA 3.3 hrs.

2,4-D: ADI = 0.3 mg/kg body weight/day MCPA: ADI = 0.015 mg/kg body weight/day.

### Engineering control measures

Use outdoors in a well-ventilated area. The mixing and loading of spray mixtures into the spray equipment must be carried out on an impervious pad (i.e., concrete slab, plastic sheeting) large enough to catch any spilled material. If spills occur, contain the spill by using an absorbent material (e.g. sand, earth or synthetic absorbent). Dispose of the contaminated absorbent material by placing in a plastic bag and following disposal instructions on this MSDS.

### Personal protection

Avoid inhaling fumes or spray drift.

Protective and chemical resistant gloves.

Wear eye protection. Safety glasses. Risk irreversible damage to eyes.

Wear protective clothing e.g. long sleeve shirt, long pants, and shoes with socks.

### Other protection

Take extreme care to avoid drift. Do not eat, drink or smoke while handling this product.

Prevent contamination of food, feeds, drinking water and eating utensils. After using this product wash hands and face before eating, chewing gum, smoking, drinking or using the toilet. Wash accurately (preferably a shower) after work shift. Wash hands during breaks and at the end of the work with soap and water. Remove clothing immediately if pesticide gets inside; then wash thoroughly and put on clean clothing.

Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

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## 9. Physical and chemical properties

Appearance:	Dark-brown soluble concentrate with a strong phenolic cresylic odour.
Specific gravity:	1.112 g/ml (20°C)
Melting point:	Dicamba: 114-116°C; 2,4-D:138°C; MCPA: 118-119°C
Flashpoint:	Dicamba >199°C
Oxidizing properties:	Dicamba: Mildly to non-corrosive. MCPA: It is an acid and will corrode metals.
Solubility in water:	Dicamba: 720 g acid equivalent /L (25°C). Highly soluble. 2,4-D: 3 kg/L (20°C) MCPA: 734 mg/L (25°C)
Solubility in solvents:	Dicamba: ethanol 922 g/L; cyclohexanone 916 g/L, acetone 810 g/L 2,4-D: soluble in alcohols and acetone. Insoluble in kerosene and diesel oil. MCPS: ethanol 130 g/L; diethyl ether 770 g/L; xylene 49 g/L
Neurotoxicity	Accidental human poisoning with 2,4-D, which resulted in severe neurotoxicity, has been reported.

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## 10. Stability and reactivity

Conditions to avoid:	Avoid sources of heat, free flames or sparks
Hazardous decomposition:	Products of combustion: May yield steam, Dicamba ammine salt, HCL, organochloride products, oxides of nitrogen, carbon monoxide.

Non hazardous reactions when stored and handled according to prescribed instructions.

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## 11. Toxicological information (active ingredient)

Acute toxicity:	Dicamba: Dicamba is moderately toxic by ingestion and slightly toxic by inhalation or dermal exposure. Symptoms of poisoning with Dicamba include loss of appetite (anorexia), vomiting, muscle weakness, slowed heart rate, shortness of breath, central nervous system effects (victim may become excited or depressed), benzoic acid in the urine, incontinence, cyanosis (bluing of the skin and gums), and exhaustion following repeated muscle spasms. In addition to these symptoms, inhalation can cause irritation of the linings of the nasal passages and the lungs,
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and loss of voice. Most individuals who have survived severe poisoning from Dicamba have recovered within 2 to 3 days with no permanent effects.

Acute oral LD<sub>50</sub> (Rat) = 700 mg/kg, mice 550 mg/kg.

2,4-D: In humans, prolonged breathing of 2,4-D causes coughing, burning, dizziness, and temporary loss of muscle coordination. Symptoms of poisoning can fatigue and weakness with perhaps nausea. On rare occasions there can be inflammation of the nerve endings with muscular effects following high levels of exposure.

Acute oral LD<sub>50</sub> (Rat) = 375 mg/kg, mice 138 mg/kg.

MCPA: Symptoms in humans from acute toxic exposure include slurred speech, twitching, jerking and spasms, drooling, low blood pressure, and unconsciousness. The estimated human lethal oral dose is from 250 to 450 mg/kg.

Acute oral LD<sub>50</sub> (Rat) = 700 mg/kg, mice 550 mg/kg

Skin and eye: Dicamba: Moderately irritating to skin (rabbits). Moderate skin sensitiser (guinea pigs). Dicamba is very irritating and corrosive and can cause severe and permanent damage to the eyes. Running water should be flushed through the eyes for at least 15 minutes if any Dicamba is splashed into them. The eyelids may swell and the cornea may be cloudy for a week after Dicamba is splashed in the eyes. Eye irritation in rabbits: Induced corrosiveness of conjunctival tissues and corneal injury which was reversible in 72 hours. In a recent study, eye damage was irreversible and pannus was observed. In some individuals, Dicamba is a skin sensitizer. It may cause skin burns. There is no evidence that Dicamba is absorbed into the body through the skin.

Acute dermal LD<sub>50</sub> (rabbit) > 2000 mg/kg.

2,4-D: Harmful in contact with skin. Skin and eye irritant (rabbits). Not a skin sensitiser (guinea pigs). Irritating to eyes.

MCPA: Harmful in contact with skin. May cause sensitization by inhalation. Risk of serious damage to eyes. Causes irreversible eye damage. Primary Eye Irritation. Toxicity Category I (corneal opacity with irritation of conjunctive observed 21 days post-instillation with rabbits).

Acute dermal LD<sub>50</sub> (rabbit) > 1000 mg/kg.

## 12. Ecological information

### Ecotoxicity

#### Aquatic toxicity fish:

Dicamba: LC<sub>50</sub> (96 h) for rainbow trout and bluegill sunfish 135 mg/L

Dicamba is of low toxicity to fish.

2,4-D: LC<sub>50</sub> (48 h) for rainbow trout 1.1 mg/L. Toxic to fish.

MCPA: LC<sub>50</sub> (96 h) for rainbow trout: 232 mg/L. MCPA is only slightly toxic to freshwater fish.

#### Aquatic toxicity – Daphnia

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Dicamba: EC<sub>50</sub> (48 h) for daphnia: 110 mg/L.

2,4-D: EC<sub>50</sub> (21 days) for daphnia: 235 mg/L.

MCPA: EC<sub>50</sub> (48 h) for daphnia > 100 mg/L. MCPA is practically non-toxic to freshwater invertebrates, and estuarine and marine organisms.

Biodegradability:

Dicamba: In soil microbial degradation occurs, the principal metabolite being 3,6-dichlorosalicylic acid. Under conditions amenable to rapid metabolism, DT<sub>50</sub> < 14 days. K<sub>oc</sub> = 2. Metabolism by soil microorganisms is the major pathway of loss under most soil conditions. The rate of biodegradation increases with temperature and increasing soil moisture, and tends to be faster when soil is slightly acidic. When soil moisture increases above 50%, the rate of biodegradation declines.

2,4-D: In soil, microbial degradation involves hydroxylation decarboxylation, cleavage of the acid side chain, and ring opening. Half-life in soil < 7 days. K<sub>oc</sub> = c. 60. Soil microbes are primarily responsible for its disappearance in soil.

MCPA: In soil, degraded to 4-chloro-2-methylphenol, followed by ring hydroxylation and ring opening. DT<sub>50</sub> < 7 days after initial "lag phase". Duration of residual activity in soil is c. 3-4 months, following an application rate of the organic content of soil determines in large part the persistence of MCPA. With less than 10% organic matter in soil, the compound is degraded in one day and, with greater than 10% levels in soil, it takes three to nine days to degrade. No MCPA was detected in forest soils at a depth of 3 to 15 cm 40 days after application. The half-life is five to six days in slightly acidic to slightly alkaline soils.

Bio accumulation:

Dicamba: Under conditions suitable to rapid metabolism, the half-life is less than two weeks. At an application rate of 6.7 kg/ha, no Dicamba remained in the soil after one year. Available data indicate a low potential for 2,4-D to accumulate in fish.

Mobility:

Dicamba does not bind soil particles (K<sub>oc</sub> = 2 g/mL) and is highly soluble in water. It is therefore highly mobile in the soil and may contaminate groundwater. The leaching potential of Dicamba increases with precipitation and the volume applied.

MCPA leaches in most soils, but mobility thereof increases with the decrease of organic matter present in the soil.

2,4-D: Data demonstrate high mobility of 2,4-D in soils, however its potential to contaminate groundwater is limited by a rapid degradation rate and uptake by target plants. Residues of 2,-D have however been detected in groundwater, mostly from point sources, such as mixing, loading and disposal. 2,4-D is soluble in water, and has a relatively lengthy soil half-life (60 days). For these reasons, bromacil is expected to move (leach) quite readily through the soil and it can contaminate groundwater.

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## Additional information

Other ecotoxicological advice:

Do not discharge product into the environment.

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## 13. Disposal considerations

### Disposal methods:

Do not contaminate crops, grazing, rivers or dams with chemical or used container. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public waters. Do not discharge effluent containing this product into sewer systems.

### Disposal of packaging:

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank before perforating and flattening the container. Do not dispose of undiluted chemicals on-site. Empty containers and product should not be burnt. Dispose of waste product as hazardous waste via a licensed disposal contractor to an approved landfill. Do not discharge into drains or sewers.

## 14. Transport information

UN Number:	3000
Substance identity:	Dicamba: CAS RN 1918-00-9 (Dicamba-dimethylamine salt) 2,4-D: CAS RN 94-75-7 (2,4-D) MCPA: CAS RN 94-74-6 (4-chloro-2-methylphenoxy acetic acid)
ADR/RID class:	6.1
ADR/RID item no	71 (a), (b), (c)
IMDG Shipping name:	Phenoxy pesticide, Liquid, Toxic
IMDG class	6.1
IMDG packaging group:	III
IMDG marine pollutant:	2,4 D is regarded as a marine pollutant
IMDG EMS no	6.1-02
IMDG MFAG table no	510
IATA class	6.1
ADNR class	-
Tremcard no	TEC(R)-61G43b

## 15. Regulatory information

Regulations of the European union (Labelling) / National legislation/Regulations

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EEC hazard classification	TOXIC
Risk phase:	Risk of serious damage to eyes Harmful in contact with skin Harmful if swallowed
Safety phases:	Wash any contamination from skin and eyes immediately Wash hands and exposed skin before eating, drinking or smoking, before meals and after work. Keep out of reach of children. Harmful to fish. Do not contaminate ponds, waterways or ditches with chemical or used container. Keep in original container, tightly closed, in a safe place, under lock and key. Wash out container thoroughly and dispose of safely.

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## 16. Other information

### General:

Dicamba is a benzoic acid herbicide. Dicamba controls annual and perennial broadleaf weeds in grasslands. It will kill broadleaf weeds before and after they sprout.

MCPA is a systemic phenoxy herbicide used to control annual and perennial weeds in grasslands and turf. The herbicide works by concentrating in the actively growing regions of a plant (meristematic tissue) where it interferes with protein synthesis, cell division and ultimately the growth of the plant.

2,4-D, a chlorinated phenoxy compound, functions as a systemic herbicide and is used to control many types of broadleaf weeds. Mechanisms of Action: 2,4-D acid stimulates nucleic acid and protein synthesis affecting the activity of enzymes, respiration and cell division. Broadleaf plants exhibit malformed leaves, stems and roots.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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