

Super LawnWeeder

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: Super LawnWeeder
Pesticide Classification: Herbicide
UN No.: 3082

Supplier

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

Registration Holder

Enviro Industries (Pty) Ltd t/a Enviro Weed Control Systems
Co. Reg. No.: 1999/006136/07
44 Kerk Street, Lichtenburg
North West, South Africa 2740

Telephone: +27 87 231 7261
Fax: 086 541 7948
Website: www.envirobiochem.co.za

24 Hr Emergency Number: Bateleur: +27 83 123 3911

In case of Poisoning:

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

Common Name: Dicamba 120g/l + 2,4-D 180g/l + MCPA 157,5 g/l SC
Chemical Name: Dicamba: Dimethylamine salt of dicamba(3,6-dichloro-o-anisic acid)
2,4-D: Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid
MCPA: Dimethylamine salt of 2-methyl-4-chlorophenoxyacetic acid
Chemical Formula: Dicamba: $C_{10}H_{13}Cl_2NO_3$
2,4-D: $C_{10}H_{13}Cl_2NO_3$
MCPA: $C_{11}H_{16}ClNO_3$
CAS No.: Dicamba: 2300-66-5 and 2,4-D: 2008-39-1 and MCPA: 94-74-6
RSA Reg. No.: L4370 Act/Wet No. 36 of/van 1947
Namibia Reg. No.: N-AR 0703
Botswana Reg. No.: W130681

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Concentration</u>
Dicamba (dimethylamine salt)	120 g/l
2,4-D (phenoxy derivative - dimethylamine salt)	180 g/l
MCPA (phenoxy derivative - dimethylamine salt)	157,5 g/l

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class II -Moderately hazardous.

Main Hazard: Risk of serious damage to eyes. Extremely irritating and corrosive to eyes of rabbits.

Flammability: Slight fire hazard when exposed to heat or flame.

Chemical Hazard: Phytotoxicity to adjoining crops because of drift.

Biological Hazard: Possible risk of groundwater contamination at point sources, such as loading, mixing and disposal sites.

4. FIRST AID MEASURES AND PRECAUTIONS

If poisoning is suspected, do not wait for symptoms to develop. Contact a physician, the nearest hospital, or the nearest Poison Control Centre.

Symptoms of Human Poisoning: 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 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.

Symptoms in humans from acute MCPA toxic exposure include slurred speech, twitching, jerking and spasms, drooling, low blood pressure, and unconsciousness.

First Aid Measures:

Skin Contact: Wash skin for at least 15 minutes with fresh running water and soap, including hair and under fingernails. Remove contaminated clothing and wash before re-use. If irritation persists, seek medical advice immediately.

Eye Contact: Flush immediately with clear clean running water for about 15 minutes. Hold eyelids apart to rinse the entire surface of the eye and lids. If eye symptoms (redness, irritation or pain) persist refer patient to ophthalmologist for examination of eyes.

Ingestion: Induce emesis. Do not induce vomiting unless advised by a physician. Seek medical advice.

Inhalation: Move victim from contaminated area to fresh air. Apply oxygen or artificial if necessary. Consult a physician after significant exposure.

Advice to Physician: Treat symptomatically.

Antidote: There is no specific antidote for poisoning with this product.

5. FIRE FIGHTING MEASURES

Flammable: Slight fire hazard when exposed to heat or flame.

Extinguishing Agents: Dry chemical, carbon dioxide or standard foam.

Firefighting: Fire may produce irritating or poisonous vapours, mists or other products of combustion. Firefighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

Special Hazards: Avoid breathing vapors. Keep up-wind. Fight fire from maximum distance. Beware of toxic fumes. Dyke fire water for later disposal. Remove containers from fire at first safe opportunity.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal Precautions: Wear protective clothing. Avoid breathing vapours or spray drift. If necessary, wear a self-contained breathing apparatus.

Environmental Precautions: Dangerous to fish. Do not contaminate ponds, waterways or ditches with chemical or used containers. Do not allow to enter drainage systems, surface or ground water. If the product enters watercourses or sewers or contaminate soil or plants, inform competent authority.

Small spills: Do not wash into sewer. If spills occur, contain the spill by using an absorbent material (e.g., sand, sawdust, earth or synthetic absorbent). Dispose of the contaminated absorbent material by placing in a plastic bag and following disposal instructions in Section 13 of this document.

Large Spills: Large spillages should be dammed-off and pumped into containers. Soak up the remaining product and dispose of in accordance with local regulations. Do not wash into sewer. Do not flush spilled material into sewer or drains. Keep spectators away.

7. HANDLING AND STORAGE REQUIREMENTS

Suitable Material: Do not mix, store or apply in galvanized or unlined mild steel containers or spray tanks. The product can react with such containers and tanks or produce hydrogen gas which may form a highly combustible mixture that can flash or explode if ignited.

Handling: Harmful if swallowed. Avoid contact with skin, eyes and clothing. Do not leave the product in the applicator for long periods. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Remove clothing immediately if the herbicide gets inside, then wash skin thoroughly using 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: Store in original sealed containers in a well-ventilated and dry storehouse. Keep away from direct sunlight, open flame, food, seed, animals, children and uninformed persons. Store at temperature not exceeding 30 °C. Do not leave in applicators for extended periods.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Acceptable Daily Intake (ADI): Not available (Dicamba). 0.3 mg/kg human body weight (2,4-D). 0.015 mg/kg human body weight (MCPA).

Engineering Controls: 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 Protective Equipment:

Clothing: Long-sleeved shirt, long pants, shoes plus socks, protective (impermeable) gloves. Employee must wear appropriate protective clothing and equipment to prevent prolonged skin contact with this product. Clothing soaked with Super LawnWeeder solution should be promptly removed and laundered before re-use.

Gloves: Protective waterproof (impermeable) rubber or plastic gloves are recommended.

Eye Protection: Always wear eye protection, like safety glasses. Risk of irreversible damage to eyes. 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.

Respiratory: Avoid inhaling fumes or spray drift.

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. Wash hands and face before eating, chewing gum, smoking, drinking or using the toilet after using this product. Wash accurately (preferably a shower) after work shift. Wash hands during breaks and at the end of the work with soap and water. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dark-brown soluble concentrate.

Odor: Strong phenolic cresylic odor.

pH: Not available.

Flammability: Slight fire hazard when exposed to heat or flame.

Explosive Properties: Not explosive.

Oxidizing Properties: Dicamba is mildly to non-corrosive. MCPA is an acid and will corrode metals.

Density: Data not available.

10. STABILITY AND REACTIVITY

Stability: The product is stable when stored under normal storage conditions at normal temperatures.

Conditions to Avoid: Avoid sources of heat, free flames or spark generating equipment.

Incompatible Materials: No known incompatible materials.

Decomposition Products: Steam, Dicamba amine salt, HCl, organochloride products, oxides of nitrogen, carbon monoxide may form during combustion.

11. TOXICOLOGICAL INFORMATION

Acute toxicity based on the active ingredient toxicity.

Toxicity of Dicamba:

Acute Oral LD₅₀ (rat): 1707 mg/kg. Moderately toxic by ingestion.

Acute Dermal LD₅₀ (rabbit): > 2000 mg/kg. Slightly toxic by dermal exposure.

Acute Inhalation LC₅₀ (rat, 4 hr): > 9.6 mg/l air. Slightly toxic by inhalation.

Skin Irritation (rabbit): Moderately irritating to skin.

Eye Irritation (rabbit): Extremely irritating and corrosive to eyes. Get medical aid. Very irritating and corrosive and can cause severe and permanent damage to the eyes.

Skin Sensitization (guinea pig): Moderate skin sensitizer. In some individuals, dicamba is a skin sensitizer. It may cause skin burns.

Chronic Effects: No data available.

Carcinogenicity: Data from laboratory studies are inadequate for EPA to determine if Dicamba can increase the risk of cancer in humans.

Mutagenicity: Dicamba has not been shown to be a mutagen.

Reproductive Hazard: In a 3-generation study, Dicamba did not affect the reproductive capacity of rats. EPA has set the NOAEL for this study at 3 mg/kg/day. Dicamba is suspected of being a human teratogen. No teratogenic effects have been shown in lab animals such as rabbits and rats.

Toxicity of 2,4-D:

Acute Oral LD₅₀ (rat): 375 mg/kg. Harmful if swallowed.

Acute Dermal LD₅₀ (rat): No data available.

Acute Inhalation LC₅₀ (rat, 24 hr): > 1.79 mg/l air

Skin and Eye Irritation (rabbit): Skin and eye irritant.

Skin Sensitization (guinea pig): Not a skin sensitizer.

Chronic Effects: No data available.

Carcinogenicity: In humans, a variety of studies give conflicting results.

Mutagenicity: 2,4-D has been very extensively tested for mutagenicity and found to be non-mutagenic in most systems. 2,4-D did not damage DNA in human lung cells. The evidence is too equivocal to draw any conclusions.

Reproductive Hazards: 2,4-D has a very limited ability to cause birth defects. No direct evidence of reproductive problems associated with 2,4-D exposure exists.

Toxicity of MCPA:

Acute Oral LD₅₀ (rat): 770 mg/kg. The estimated human lethal oral dose is from 250 to 450 mg/kg.

Acute Dermal LD₅₀ (rabbit): >1 000 mg/kg.

Acute Inhalation LC₅₀ (rat, 4 hr): >6.36 mg/l air.

Skin and Eye Irritation (rabbit): Risk of serious damage to eyes. Causes irreversible eye damage.

Skin Sensitization (guinea pig): No data available.

Chronic Effects: No data available.

Carcinogenicity: All of the available cancer evidence on MCPA indicates that the compound does not cause cancer.

Mutagenicity: MCPA was only weakly mutagenic to bone marrow and ovarian cells of hamsters and negative results were reported for all other mutagenic tests. While another test has been requested by the EPA (a gene mutation study) it appears that the compound poses little mutagenic risks to humans.

Reproductive Hazards: A two-generation rat study at doses of up to 15 mg/kg affected reproductive function. Even smaller amounts of the compound were toxic to the fetuses. Dogs receiving relatively small amounts of MCPA (8 and 16 mg/kg) for 13 weeks had various adverse sperm and testes changes. No conclusions can be drawn about human birth defect risk from the currently available information.

12. ECOLOGICAL INFORMATION

Ecotoxicity is based on the active ingredient toxicity.

Ecotoxicity of Dicamba:

Aquatic Toxicity Fish LC₅₀ (96 hr): 135 mg/l (rainbow trout); 135 mg/l (bluegill sunfish). Dicamba is of low toxicity to fish.

Aquatic Toxicity Daphnia EC₅₀ (48 hr): 110 mg/l.

Aquatic Toxicity Algae EC₅₀ (72 hr): No data available.

Avian Toxicity LD₅₀: >2 000 mg/kg. Practically non-toxic to birds.

Bee Toxicity LD₅₀: >100 µg/bee. Non-toxic to bees.

Biodegradability: In soil microbial degradation occurs, the principal metabolite being 3,6- dichlorosalicylic acid. Under conditions amenable to rapid metabolism, DT₅₀ <14 days. 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.

Bio-accumulation: Under conditions suitable to rapid metabolism, the half-life is less than 2 weeks. At an application rate of 6.7 kg/ha, no dicamba remained in the soil after one year.

Mobility: Does not bind soil particles (K_{oc} = 2 g/ml) and is highly soluble in water. It is therefore highly mobile in the soil and may contaminate groundwater. Its leaching potential increases with precipitation and the volume applied.

Ecotoxicity of 2,4-D:

Aquatic Toxicity Fish LC₅₀ (48 hr): 1.1 mg/l (rainbow trout). Toxic to fish.

Aquatic Toxicity Daphnia EC₅₀ (21 days): 235 mg/l

Aquatic Toxicity Algae EC₅₀ (72 hr): No data available.

Avian Toxicity LD₅₀ (9 days): No data available.

Bee Toxicity LD₅₀: No data available.

Biodegradability: In soil, microbial degradation involves hydroxylation, decarboxylation, cleavage of the acid side chain and ring opening. Half-life in soil < 7 days. K_{oc} = c. 60. Soil microbes are primarily responsible for degradation in soil.

Bio-accumulation: 2,4-D to accumulate in fish.

Mobility: Although laboratory data demonstrate that 2,4-D is mobile in soils, its potential to contaminate groundwater is limited by its rapid rate of degradation and uptake by target plants. However, residues of 2,4-D have been detected in groundwater, mostly from point sources, such as mixing and loading areas. 2,4-D is soluble in water and has a relatively lengthy soil half-life (60 days).

Ecotoxicity of MCPA:

Aquatic Toxicity Fish LC₅₀ (96 hr): 232 mg/l (rainbow trout). MCPA is only slightly toxic to freshwater fish.

Aquatic Toxicity Daphnia EC₅₀ (48 hr): >100 mg/l. MCPA is practically non-toxic to freshwater invertebrates, estuarine and marine organisms.

Aquatic Toxicity Algae EC₅₀ (72 hr): No data available.

Avian Toxicity LD₅₀ (9 days): No data available.

Bee Toxicity LD₅₀: No data available.

Biodegradability: In soil, degraded to 4-chloro-2-methylphenol, followed by ring hydroxylation and ring opening. DT₅₀ < 7 days after initial "lag phase". Duration of residual activity in soil is c. 3-4 months. 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. With greater than 10% organic matter 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: No data available.

Mobility: MCPA leaches in most soils, but its mobility increases as organic matter decreases.

13. DISPOSAL CONSIDERATION

Pesticide Disposal: Do not contaminate crops, grazing, rivers or dams with chemical or used containers. 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. Dispose of in approved landfill or preferably in a pesticide incinerator.

Package Product Wastes: Rinse empty container three times with a volume of water equal to at least one tenth of that of the container. Add the rinsings to the spray tank before perforating and flattening the container. Dispose of waste product as hazardous waste via a licensed disposal contractor to an approved landfill or preferably in a pesticide incinerator.

14. TRANSPORT INFORMATION

UN No.: 3082

Class: 9

Packaging Group: III

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (contains Dicamba, 2,4-D & MCPA)

15. REGULATORY INFORMATION

Risk Phrases: **R 22-** Harmful if swallowed.
 R 41- Risk of serious damage to eyes.
 R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases: **S2-** Keep out of reach of children.
 S36/37- Wear suitable protective clothing and gloves.
 S45- In case of accident or if you feel unwell, seek medical advice immediately.
 S61- Avoid release to the environment.

National Legislation: This product is registered under Act 36 of 1947 of the Republic of South Africa. 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.

16. OTHER INFORMATION

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

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 (chlorinated phenoxy compound) functions as a systemic herbicide and is used to control many types of broadleaf weeds. 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.

Special Precautions: Keep livestock out of treated areas for at least 12 weeks and until foliage of any poisonous weeds have died and become unpalatable.

A hormone herbicide. Avoid pollution and spray drift. Aerial application of the product is not allowed.

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.

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