

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: Super LawnWeeder
Herbicide

UN number: 3082

Supplier

Enviro Industries (Pty) Ltd
Co. Reg. No.: 1999/006136/07
10 Ninth Avenue, Industria,
Kroonstad, South Africa

Registration Holder

Enviro Industries (Pty) Ltd t/a Enviro Weed Control Systems
Co. Reg. No.: 1999/006136/07
10 Ninth Avenue, Industria,
Kroonstad, South Africa

Telephone: 0861 44 44 90
Fax: 086 590 6699
Website: www.enviro-crop.co.za

24 Hr Emergency Number: Bateleur: 083 1233 911

In case of Poisoning:

Poison Information Centre 082 446 8946
Tygerberg Hospital: (021) 931 6129
Poison Emergency Enquiries (021) 689 5227

Chemical Names: MCPA & 2,4-D: Auxin type herbicides; Chlorophenoxy_compound
Dicamba: Substituted benzoic acid

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

Hazardous Components: Dicamba (dimethylamine salt) 120 g/l ae
2,4-D (phenoxy derivative - dimethylamine salt) 180 g/l ae
MCPA (phenoxy derivative - dimethylamine salt) 157,5 g/l ae

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

3. HAZARD IDENTIFICATION

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

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.

Reproductive hazard: Dicamba is suspected of being a human teratogen. No direct and conclusive evidence of reproductive problem associated 2,4-D or MCPA in humans exists.

Eye effects: eyes: Dicamba: Extremely irritating and corrosive to eyes. Get medical aid. Flush with running tap water for at least 15 minutes. See in section 11 "Skin and eye contact"
2,4-D: Irritating to eyes
MCPA: Risk of serious damage to eyes. Causes irreversible eye damage.

Health effects: skin: Dicamba: Moderately irritating to skin (rabbits). Moderate skin sensitiser (guinea pigs) Acute dermal LD₅₀ (rabbit) > 2000 mg/kg
2,4-D: Harmful in contact with skin. Skin and eye irritant (rabbits). No skin sensitiser (guinea pigs). 2,4-D has produced serious eye and skin irritation among agricultural workers.
MCPA: Harmful in contact with skin. May cause sensitization by inhalation. Acute dermal LD₅₀ (rabbit) > 1000 mg/kg

Health effects: ingestion: Dicamba: Acute oral LD₅₀ (rat) = 1707 mg/kg
2,4-D: Harmful if swallowed. Acute oral LD₅₀ (rat) = 375 mg/kg; mice 138 mg/kg
MCPA: Acute oral LD₅₀ (rat) = 700 mg/kg, mice 550. The estimated human lethal oral dose is from 250 to 450 mg/kg

Health effects: inhalation: Dicamba: LC₅₀ (4 h) for rats > 9.6 mg/l
2,4-D: LC₅₀ (24 h) for rats > 1.79 mg/l
MCPA: LC₅₀ (4 h) for rats > 6.36 mg/l May cause sensitization by inhalation.

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| Carcinogenic: | <u>Dicamba:</u> Data from laboratory studies are inadequate for EPA to determine if dicamba can increase the risk of cancer in humans. <u>2,4-D:</u> In humans, a variety of studies give conflicting results. There remains considerable controversy about the methods used in the various studies. Investigations are continuing. <u>MCPA:</u> All of the available cancer evidence on MCPA indicates that the compound does not cause cancer. |
| Mutagenicity: | See section 11. |
| Neurotoxicity: | Accidental human poisoning with 2,4-D, which resulted in severe neurotoxicity, has been reported. |

4. FIRST AID MEASURES AND PRECAUTIONS

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| Product in eye: | 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 eye. |
| Product on skin: | Wash skin immediately for at least 15 minutes with fresh running water and soap, including hair and under fingernails. Remove contaminated clothing and wash before reuse. Treat symptomatically. |
| Product ingested: | <u>Dicamba:</u> Induce emesis <u>2,4-D:</u> Do not induce vomiting unless advised by a physician. The most characteristic signs of severe 2,4-D poisoning in animals are those of myotonia (muscle spasms). <u>MCPA:</u> Do not induce vomiting unless advised by a physician. |
| Product inhaled: | Move victim from contaminated area to fresh air. Apply oxygen or artificial if necessary. Treat symptomatically. Consult a physician after significant exposure. |

5. FIRE FIGHTING MEASURES

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| Extinguishing media: | Dry chemical, carbon dioxide or standard foam. |
| Special hazards: | Avoid breathing vapours. Keep up-wind. Fight fire from maximum distance. Beware of toxic fumes. Dike fire water for later disposal. Remove containers from fire at first safe opportunity. |
| Protective clothing: | Wear protective clothing. In case of major fires, wear a self contained breathing apparatus. |

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

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| Personal precautions: | Wear protective clothing. Avoid breathing dust. If necessary, wear a self-contained breathing apparatus. |
| Environmental precautions: | Dangerous to fish. Do not contaminate ponds, waterways or ditches with chemical or used container. 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 on this MSDS. |
| Large spills: | Large spillages should be dammed-off and pumped into containers; soak up remainder 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

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| 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 by open, spark, welder's torch, lighted cigarette or other ignition source. |
| Handling/Storage precautions: | Store at temperature not exceeding 40 °C. Harmful if swallowed. Avoid contact with skin, eyes and clothing. Store in sealed original containers, in a well-aired, fresh and dry storehouses and in shaded places. Keep away from direct sunlight, open flame, food, seed, animals, children and uninformed persons. Do not leave spray solution in spray tanks for long periods. |

8. EXPOSURE CONTROL / PERSONAL PROTECTION

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| Occupational exposure limits: | <u>Dicamba:</u> ADI (acceptable daily intake)= not available; TWA 200l; TWA 1000 ml/min; TWA 3.3 hrs. <u>2,4-D:</u> ADI = 0.3 mg/kg body weight/day <u>MCPA:</u> 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 |

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| | (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 - respiratory: | Avoid inhaling fumes or spray drift. |
| Personal protection – hand: | Protective (impermeable) and chemical resistant gloves. |
| Personal protection – eye: | Wear eye protection. Safety glasses. <u>Risk of irreversible damage to eyes.</u> |
| Personal protection - skin: | Protective clothing. Long-sleeved shirt, long pants, shoes plus socks, protective (impermeable) and chemical resistant gloves. |
| 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. |

9. PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance: | Dark-brown soluble concentrate with strong phenolic cresylic odour. |
| Odour: | Strong phenolic cresylic odour. |
| pH: | Not available |
| Flammability: | Slight fire hazard when exposed to heat or flame. |
| Auto flammability: | Not applicable |
| Explosive properties: | Not Explosive. |
| Vapour pressure: | Not available |
| Oxidizing properties: | <u>Dicamba</u> : Mildly to non-corrosive. <u>MCPA</u> : It is an acid and will corrode metals |
| Density: | Not available |
| Solubility – coefficient: | No data available. |
| Neurotoxicity: | Accidental human poisoning with 2,4-D, which resulted in severe neurotoxicity, has been reported. |

10. STABILITY AND REACTIVITY

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| Conditions to avoid: | Avoid sources of heat, free flames or spark generating equipment. |
| Incompatible materials: | No known incompatible materials. |
| Hazardous decomposition products: | Products of combustion: May yield steam, Dicamba amine salt, HCL, organochloride products, oxides of nitrogen, carbon monoxide. |

11. TOXICOLOGICAL INFORMATION

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| Acute toxicity: | <u>Dicamba</u> : 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, and loss of voice. Most individuals who have survived severe poisoning from Dicamba have recovered within 2 to 3 days with no permanent effects. <u>2,4-D</u> : 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. <u>MCPA</u> : 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. |
| Skin and eye contact: | <u>Dicamba</u> : Moderately irritating to skin (rabbits). Moderate skin sensitiser (guinea pigs). Acute dermal LD ₅₀ (rabbit) > 2000 mg/kg. 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. |

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| | 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. |
| | <u>2,4-D</u> : Harmful in contact with skin. Skin and eye irritant (rabbits). Not a skin sensitizer (guinea pigs). Irritating to eyes. |
| | <u>MCPA</u> : Harmful in contact with skin. May cause sensitization by inhalation. Acute dermal LD ₅₀ (rabbit)>1000 mg/kg. 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). |
| Carcinogenicity: | <u>Dicamba</u> : Data from laboratory studies are inadequate for EPA to determine if Dicamba can increase the risk of cancer in humans. |
| | <u>2,4-D</u> : In humans, a variety of studies give conflicting results. There remains considerable controversy about the methods used in the various studies and thus with results of the various studies. Investigations are continuing. |
| | <u>MCPA</u> : All of the available cancer evidence on MCPA indicates that the compound does not cause cancer. |
| Mutagenicity: | <u>Dicamba</u> : Dicamba has not been shown to be a mutagen |
| | <u>2,4-D</u> : 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. |
| | <u>MCPA</u> : 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: | <u>Dicamba</u> : 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. |
| | <u>MCPA</u> : 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. |
| | <u>2,4-D</u> has a very limited ability to cause birth defects. No direct evidence of reproductive problems associated with 2,4-D exposure exists. |

12. ECOLOGICAL INFORMATION

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| Aquatic toxicity – fish: | <u>Dicamba</u> : LC ₅₀ (96 h) for rainbow trout and bluegill sunfish 135 mg/l. Dicamba is of low toxicity to fish. |
| | <u>2,4-D</u> : LC ₅₀ (48 h) for rainbow trout 1.1 mg/l. Toxic to fish. |
| | <u>MCPA</u> : LC ₅₀ (96 h) for rainbow trout: 232 mg/l. MCPA is only slightly toxic to freshwater fish. |
| Aquatic toxicity – daphnia: | <u>Dicamba</u> : EC ₅₀ (48 h) for daphnia: 110 mg/l. |
| | <u>2,4-D</u> : EC ₅₀ (21 days) for daphnia: 235 mg/l. |
| | <u>MCPA</u> : EC ₅₀ (48 h) for daphnia> 100 mg/l. MCPA is practically non-toxic to freshwater invertebrates, and estuarine and marine organisms. |
| Aquatic toxicity – algae: | <u>Dicamba</u> : Not available |
| | <u>2,4-D</u> : Not available |
| | <u>MCPA</u> : Not available |
| Biodegradability: | <u>Dicamba</u> : In soil microbial degradation occurs, the principal metabolite being 3,6- dichlorosalicylic acid. Under conditions amenable to rapid metabolism, DT ₅₀ <14 days. K _{oc} = 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. |
| | <u>2,4-D</u> : 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 its disappearance in soil. |
| | <u>MCPA</u> : In soil, degraded to 4-chloro-2-methylphenol, followed by ring hydroxylation and ring opening. DT ₅₀ < 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: | <u>Dicamba</u> : 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. Available data indicate a low potential for <u>2,4-D</u> to accumulate in fish. |
| Mobility: | <u>Dicamba</u> 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. |

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

2,4-D: 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, loading and disposal. 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.

German wgt:

Not available.

13. DISPOSAL CONSIDERATION

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. Dispose of in approved landfill or preferably in a pesticide incinerator.

Disposal of packaging:

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 in approved landfill or preferably in a pesticide incinerator.

14. TRANSPORT INFORMATION

Non-Hazardous for transportation

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| UN no: | 3082 |
| Proper shipping name: | Environmentally Hazardous, Liquid, N.O.S. |
| Class: | 9 |
| Packaging group: | III |

15. REGULATORY INFORMATION

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| Risk phases: | 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 |
| National legislation: | Act no 85 of 1993 (Republic of South Africa) |

16. OTHER INFORMATION

NB. 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, a chlorinated phenoxy compound, functions as a systemic herbicide and is used to control many types of broadleaf weeds. Mechanism of Pesticide 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.

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 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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