SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: **WeedWHACKER**
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 Family: Uracil or substituted uracil.
Chemical names: Bromacil: (5-Bromo-3-sec-butyl-6-methyluracil)
Synonyms: Bromacil: IN-N 976

RSA Reg. No.: L6707 Act/Wet No. 36 of/van 1947
Botswana Reg. No.: W130686

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components: Bromacil 500 g/ℓ
R Phrases: R 50/53 – very toxic to aquatic organisms, may cause long term adverse effects in the environment.
R40 Possible risks of irreversible effects.

3. HAZARD IDENTIFICATION

Main hazard: Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. Poisonous if swallowed. May irritate the nose, skin, throat and eyes. Do not contaminate rivers, streams or dams (very toxic to aquatic organisms). Do not apply within the root zone of desirable vegetation.

Flammability: Non flammable and non-volatile when diluted for use.

Chemical hazard: Bromacil: Most important hazards: No hazards to be especially mentioned.

Biological hazard: Highly toxic to algae. Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. Bromacil can seep or leach through soil and can enter ground water which may be used as drinking water. Correct use rates by geographical area and proper mixing-loading site precautions and procedures must be followed to minimize potential Bromacil movement into ground water.

Reproductive hazard: Bromacil did not affect the reproduction and lactation performance of rats fed 0 or 12.5 mg/kg/day for 3 generations.

Eye effects: eyes: Bromacil – Mild to moderate eye irritant causing mild corneal opacity. Product – risk of serious damage to eyes (dye in product).

Health effects: skin : Bromacil – Dermal LD_{50} (rat)>5000 mg/kg; the compound is a moderate skin irritant. It is not a skin sensitizer.

Health effects: ingestion: Bromacil – Oral LD_{50} (rat) = 5175 mg/kg. When a massive dose was administered to the dog (5 000 mg/kg), incoordination, salivation, vomiting, weakness, lacrimination and dilated pupils were observed. Toxicity described in animals repeatedly exposed to near lethal doses include liver changes, increased liver, adrenal and heart weights, decreased kidney and spleen weights. See section 4: Product ingested.

Health effects: inhalation: Bromacil – LD_{50}(4 h) for rats > 4.8 mg/ℓ air; Irritating to respiratory system. All rats tolerated a 4-hr. exposure at the equivalent of 4800 mg/m^3 (4.8 mg/ℓ) indicating a low order of acute inhalation toxicity. Higher concentrations were impractical under test conditions. Product: Avoid inhalation of spray mist. Do not breath gas/ fumes/ vapour/spraymist/dust.

Carcinogenic: Bromacil: 24 month dietary rat: NOEL 50 ppm; not oncogenic; body weight effects at ≥250 ppm. Although bromacil has not been determined to cause cancer, it is considered by the EPA to be a possible human carcinogen because there is some limited or uncertain evidence that bromacil cause cancer in animals receiving high doses of the chemical over the course of their lifetimes. There was no evidence of carcinogenicity in rats fed 12.5 mg/kg/day of bromacil.

Mutagenicity: Bromacil: Gene mutation: Ames test, negative; CHO/HGPRT negative. Structural chromosome aberration: mouse micro-nucleus, negative. In vitro cytogenetics, clastogenic. DNA damage/repair: UDS, negative. Several mutagenic screening tests have not found Bromacil to be mutagenic.

Neurotoxicity: Ingestion of very LARGE AMOUNTS may cause CNS depression.

4. FIRST AID MEASURES AND PRECAUTIONS

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. Call a physician. 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.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray (not preferred), CO_2, dry chemical or foam.

Specific methods: On small fire use dry chemical, CO_2, foam or water spray. If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. If conditions permit, cool containers / tanks with spray water. Fire generates poisonous and corrosive fumes containing: carbon oxides, nitrogen oxides and hydrochloric acid.

Special hazards: May be ignited by heat or open flame. Fine dust dispersed in air (particularly in confined spaces) may ignite if exposed to high temperature ignition source. These conditions are unlikely to occur in normal, outdoor use of this product. Fires generate poisonous and corrosive fumes containing: carbon oxides, nitrogen oxides and hydrochloric acid.

Protective clothing: Wear a self contained breathing apparatus. Wear full protective equipment.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Review FIRE FIGHTING MEASURES and HANDLING AND STORAGE sections before proceeding with clean-up. Use appropriate personal protection and equipment. Wear protective clothing. Avoid breathing spray mist, dust and fumes. If necessary, wear a self-contained breathing apparatus.

Environmental precautions: 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: Clean up promptly. Soak up with bentonite, fossil flour, sand, vermiculite or sawdust. Collect by sweeping or suction using an approved industrial vacuum cleaner. Place into hermetically sealed containers and dispose of according to local regulations. Flush spill area with water to remove any residue but ensure that the contaminant does not enter any water system or come into contact with any desirable vegetation. If spill area is on ground near valuable plants or trees, remove top 50 mm of soil after initial cleanup.

Large spills: Clean up promptly. Dyke spill. Prevent material from entering sewers, waterways or low-lying areas. Collect all damage containers ensuring that no further spillage occurs. Pump all excess spillage into sealed containers and dispose of according to local regulations. Soak remaining spillage up with bentonite, fossil flour, sand vermiculite or sawdust. Collect by sweeping or suction using an approved industrial vacuum cleaner. Place into hermetically sealed containers and dispose of according to local regulation. Flush the spill area with water to remove any residue but ensure that the contaminant does not enter any water system or come into contact with any desirable vegetation. If spill area is on ground near valuable plants or trees, remove top 50 mm of soil after initial cleanup. Keep spectators away.

7. HANDLING AND STORAGE REQUIREMENTS

Suitable material: This product should only be stored or applied using aluminum, fiberglass or plastic lined containers. Corrosive to stainless steel.

Handling/Storage precautions:

Handling: Harmful if swallowed. Avoid contact with skin, eyes and clothing. Do not leave the product in the applicator for long period. Use with adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the herbicide get 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 or injury to desired vegetation. Keep out of reach of children

Storage: Store in sealed original containers, in a well-aired, fresh and dry storehouses and in shaded places. Provide appropriate exhaust ventilation at places where dust is formed (manufacturing). Keep away from direct

sunlight, open flame, food, seed, animals, children and uninformed persons. Store at temperature not exceeding 40 ºC. Do not leave in applicators for extended periods.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational exposure limits: Bromacil: ADI (acceptable daily intake) 0.13 mg/kg body weight daily. Applicable exposure limits:
PEL (OSHA): Non established
TVL (ACGIH): 10 mg/m^3, 8hr. TWA, A3
AEL* (DuPont): 10 mg/m^3, 8 & 12hr. TWA
*AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupationally imposed limits which are lower than the AEL are in effect, such limits shall take precedence.

Engineering control measures: Ensure adequate ventilation, especially in confined areas. Use only outdoors in a well ventilated area. Keep container tightly closed. Comply with occupational safety, environmental, fire, and other applicable regulations.

Personal protection - respiratory: Avoid inhaling fumes or spray drift. Respiratory protection is not required for normal use and handling. Where there is potential for airborne exposure in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Personal protection – hand: Protective (impermeable) gloves. Waterproof gloves. Wash outside of gloves before removing.

Personal protection – eye: Wear eye protection. Safety glasses.

Personal protection - skin: Long-sleeved shirt, long pants, shoes plus socks, protective (impermeable) gloves.

Other protection: 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. Take extreme care to avoid drift. Wash accurately (preferably a shower) after work shift. Wash hands during breaks and at the end of the work with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Red suspension concentrate.
Odour:	Slight aromatic.
pH:	Not available.
Boiling point:	Not applicable
Melting point:	Bromacil: 157.5 – 160 ºC
Flash point:	Bromacil: Combustible- stable up to the melting point. Do not use or store product near heat or open flame.
Flammability:	Non-flammable
Autoflammability:	
Explosive properties:	Bromacil: Combustible – stable up to the melting point. Do not use or store product near heat or open flame.
Oxidizing properties:	Corrosive to aluminium.
Vapour pressure:	Not applicable
Density:	Not available
Solubility – water:	Bromacil: 807 mg/ℓ (pH 5), 700 mg/ℓ (pH 7), 1287 mg/ℓ (pH9) at 25 ºC
Solubility – solvent:	Bromacil: In athanol 134 g/ℓ; acetone 167 g/ℓ, acetonitrile 71 g/ℓ, xylene 23.3% aqueous sodium hydroxide 88 g/ℓ, all at 25 ºC.
Solubility – coefficient:	Bromacil: Partitioning coefficient (n-octanol/water) 75 (pH 5), 74.4 (pH 7).
Neurotoxicity:	Bromacil: not available

10. STABILITY AND REACTIVITY

Conditions to avoid: Avoid sources of heat, free flames or spark generating equipment. Stable at normal temperatures and storage conditions.

Incompatible materials: Incompatible with acids and amines, especially primary amines.

Hazardous decomposition products: Thermal decomposition of the product may include toxic and corrosive fumes of chlorides and toxic oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Acute toxicity: Bromacil: Acute oral LD_{50}(rat) = 5175 mg/kg; skin and eye – acute dermal LD_{50}(rat)>5000 mg/kg.

Skin and eye contact: Bromacil: Mild eye and skin irritant. Non-sensitising to skin.

Chronic toxicity: Bromacil: NOEL (no observable effect level)- In 2 year feeding trails, no ill-effects were observed in rats and dogs receiving 250 mg/kg diet; ADI (acceptable daily intake) 0.13 mg/kg body weight daily.

Carcinogenicity: Not available.

Mutagenicity: Not available.

Reproductive hazards: Bromacil : No reproductive effects were observed in rats exposed to 250 ppm in the diet for three generations. Animal testing indicated that this compound was not teratogenic and was not uniquely toxic to the conceptus.

12. ECOLOGICAL INFORMATION

Aquatic toxicity – fish:	Bromacil: LC_{50}(96 h) for rainbow trout = 36 mg/ℓ; Bluegill sunfish 127 mg/ℓ; Carp= 164 mg/ℓ. Very toxic to aquatic organisms may cause long term adverse effects in the environment.
Aquatic toxicity – daphnia:	Bromacil: LC_{50}(48 h) = 119 mg/ℓ;
Aquatic toxicity – algae:	Highly toxic to algae. Bromacil: EC50/72h/algae = 0.013 mg/ℓ
Biodegradability:	Bromacil: Duration of residual activity in soil is c. 5 months. The principle metabolite is 5-bromo-3-sec-butyl-6-hydroxymethyluracil.
Bio-accumulation:	Bromacil: Log POW = 1.87 (ph 5 / pH 7)
Mobility:	Bromacil: Highly mobile
German wgk:	Not available.

13. DISPOSAL CONSIDERATION

Disposal methods : Do not contaminate crops, grazing, rivers or dams with chemical or used container. Do not allow material to contaminate ground water system. Waste from residues / unused products: In accordance with national regulations. Must be incinerated in a suitable incineration plant holding a permit by the competent authorities. Do not flush to water or sanitary sewer system.

Disposal of packaging: Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if swallowed by State and local authorities, by burning. Do not contaminate ponds, waterways or ditches with chemical or used container. Do not reuse empty container.

14. TRANSPORT INFORMATION

UN number:	3082
Proper shipping name:	Environmentally Hazardous, Liquid, N.O.S.
Hazard class:	9
Packing group:	III

15. REGULATORY INFORMATION

Risk phases:
R 50/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the environment.
Safety phases:
S2 Keep out of reach of children.
S36/37 Wear suitable protective clothing and gloves.
S60 This material and/or its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions / safety data sheets.
National legislation: Act no 36 of 1947
Act no 85 of 1993 (Republic of South Africa)

16. OTHER INFORMATION

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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