

BUSHWHACKER GG

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: BUSHWHACKER GG
Pesticide Classification: Herbicide
UN No.: 3077

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: Bromacil 200 g/kg GG
Chemical Name: 5-Bromo-3-Sec-Butyl-6-Methyluracil (IUPAC)
Empirical Formula: C₉H₁₃BrN₂O₂
CAS No.: 314-40-9
RSA Reg. No.: L7103 Act 36 of 1947
Namibia Reg. No.: N-AR 0695

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Concentration</u>
Bromacil (substituted uracil)	≥20%

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class III -Slightly hazardous.

Main Hazard: Very toxic to aquatic organisms. Poisonous if swallowed. May irritate the nose, skin, throat and eyes.

Flammability: The material does not burn or burns with difficulty. It is not explosive. Airborne bromacil dust may ignite.

Chemical Hazard: No specific chemical hazard to mention.

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 usage rates by geographical area and a proper mixing/loading site precautions and procedures must be followed to minimize potential bromacil movement into ground water.

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: Skin contact may initially cause irritation or rash. Eye contact may initially include irritation, tearing or blurring of vision. Significant skin permeation and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

First Aid Measures:

Skin Contact: 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 re-use. Treat symptomatically.

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 eye.

Ingestion: Seek medical advice immediately. Rinse mouth thoroughly. Give 1 or 2 glasses of water to drink and induce vomiting if person is conscious. Never give anything by mouth to an unconscious person. Consult a physician for severe cases.

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

Advise to Physician: Ingestions of small amount (less than 10 mg bromacil / kg body weight) occurring less than an hour before treatment, are probably best treated by: Syrup of Ipecac, followed by 1-2 glasses of water. The dose for adults and children over 12 years must be 30 ml. The dose for children under 12 years must be 15 ml.

Ingestions of large amounts (more than 10 mg bromacil/kg) occurring less than an hour before treatment, should probably be treated by gastric lavage:

- 1) Intubate stomach and aspirate contents.
- 2) Lavage stomach with slurry or activated charcoal in 0.9% saline. Leave 30-50 gm activated in the stomach before withdrawing tube.
- 3) Sodium sulphate, 0.25 gm/kg in tap water, as a cathartic.

Caution: Hydrocarbons (kerosene, petroleum distillates) are included in some formulations of these chemicals. Ingestion of very large amounts may cause CNS depression. In this case, IPECAC is contraindicated. Also, gastric intubation incurs a risk of hydrocarbon pneumonitis.

For this reason, observe the following precautions:

- 1) If the victim is unconscious or obtund and facilities are at hand, insert an endotracheal tube (cuffed, if available) prior to gastric intubation.
- 2) Keep victim's head below level of stomach during intubation and lavage (Trendelenburg, or left lateral decubitus, with head of table tipped downward). Keep victim's head turned to the left.
- 3) Aspirate pharynx as regularly as possible to remove gagged or vomited stomach contents.

Ingestions occurring more than an hour before treatment are probably best treated only by activated charcoal, 30-50 gm, and sodium or magnesium sulphate, 0.25 gm/kg, as directed above. Because manifestations of toxicity do occasionally occur in peculiarly predisposed individuals, maintain contact with victim for at least 72 hours so that unexpected adverse effects can be treated promptly.

Antidote: There are no specific antidotes for these chemicals.

5. FIRE FIGHTING MEASURES

Flammability: The material does not burn or burns with difficulty. It is not explosive. Airborne bromacil dust may ignite.

Extinguishing Agents: Water spray, foam or dry chemical. (High volume water jet may not be used, as it may lead to environmental contamination).

Firefighting: On small fires 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. In case of major fires, wear a self-contained breathing apparatus.

Special Hazards: Carbon oxides, nitrogen oxides and hydrochloric acid may be generated during a fire.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal Precautions: Wear protective clothing. Avoid breathing dust. If necessary, wear a self-contained breathing apparatus.

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

Small Spills: Clean up promptly. Do not use water to collect spilled product. Do not flush spilled product into drains. Collect by sweeping or suction after mixing with bentonite, fossil flour, sand or sawdust into hermetically sealed containers and dispose of according to local regulations. Use an approved industrial vacuum cleaner for removal. If spill area is on ground near trees or other valuable plants, remove top 5 cm of soil after initial cleanup.

Large Spills: Clean up promptly. Do not use water to collect spilled product. Do not flush spilled product into drains. Shovel into suitable container for disposal or use approved industrial vacuum cleaner for removal. Contain spillage and contaminated water for subsequent disposal. Keep spectators away. If spill area is on ground near trees or other desired plants, remove top 5 cm of soil after initial cleanup.

7. HANDLING AND STORAGE REQUIREMENTS

Suitable Material: This product should only be stored or applied using stainless steel, aluminum, fiberglass or plastic lined containers. 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 flames, sparks, a welder's torch, a lighted cigarette or another ignition source.

Handling: Keep away from heat and open flames. 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. 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 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. Store out of direct sunlight. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from direct sunlight, open flames, food, seed, animals, children and uninformed persons. Store at temperature not exceeding 40 °C. Do not leave in applicators for extended periods.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Acceptable Daily Intake (ADI): 0.13 mg/kg body weight daily.

Occupational Exposure Limits (Bromacil):

- 1 ppm (10 mg/m³) OSHA TWA
- 1 ppm (10 mg/m³) ACGIH TWA
- 2 ppm ACGIH STEL
- 1 ppm (10 mg/m³) NIOSH

Engineering Controls: Ensure adequate ventilation, especially in confined areas. Use outdoors in a well-ventilated area. Comply with occupational safety, environmental, fire, and other applicable regulations.

Personal Protective Equipment:

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

Gloves: Protective (impermeable) gloves.

Eye Protection: Wear eye protection.

Respiratory: Avoid inhaling dust. Use an effective dust mask.

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 dust. 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: Granular herbicide light grey/brown in color.

Odor: Typical of bromacil.

Melting Point (Bromacil): 157.5 – 160 °C

Flash Point (Bromacil): Combustible

Flammability: Non-flammable

Auto Flammability: Stable up to the melting point.

Explosive Properties: Airborne bromacil dust may ignite.

Density: Not available

Solubility of Bromacil in Water: 807 mg/l (pH 5), 700 mg/l (pH 7), 1 287 mg/l (pH 9) at 25 °C

Solubility of Bromacil in Solvent: In ethanol 134 g/l; acetone 167 g/l, acetonitrile 71 g/l, xylene 32.3% aqueous sodium hydroxide 88 g/l, all at 25 °C. Moderately soluble in acetone, strong aqueous bases, acetonitrile, and ethyl alcohol. Only slightly soluble in hydrocarbons.

Solubility Coefficient (Bromacil): Partitioning coefficient (n-octanol/water) 75 (pH 5), 74.4 (pH 7).

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. During processing, dust may form explosive mixture in air.

Incompatible Materials: This product should only be stored or applied using stainless steel, aluminium, fiberglass or plastic lined containers. Do not mix, store or apply in galvanized or unlined mild steel containers. 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 flame, spark, welder's torch, lighted cigarette or other ignition source. Do not mix with other herbicides or pesticides except for products mentioned on the product label.

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 based on the active ingredient toxicity.

Acute Oral LD₅₀ (rats): 2 000 mg/kg (male); 1 300 mg/kg (female). Slightly toxic by ingestion.

Acute Dermal LD₅₀ (rabbits): > 5 000 mg/kg. Slightly toxic.

Acute Inhalation LC₅₀ (rat, 4 hr): >4.8 mg/l air. Irritating to respiratory system. All rats tolerated a 4-hour exposure at the equivalent of 4 800 mg/m³ (4.8 mg/l) indicating a low order of acute inhalation toxicity. Higher concentrations were impractical under test conditions.

Skin and Eye Irritation (rabbit): The compound is a moderate skin irritant, is a mild to moderate eye irritant. Eye contact of bromacil in rabbits, resulted in irritation in the conjunctiva (the mucous membrane lining the eye), but there was no injury to the cornea.

Skin Sensitization (guinea pig): The compound is not a skin sensitizer.

Chronic Effects: Rabbits acutely exposed via dermal route demonstrated no clinical signs of toxicity, and no gross tissue changes were observed at the highest practical dose of 5 000 mg/kg.

Acute inhalation exposure of rats at the highest dose tested (4.8 mg/l) resulted in only general signs of distress, as well as rapid and deep respiration. Toxicity described in animals repeatedly exposed to 0.1, 0.5 or 2.0 mg/l of the compound for two weeks include slightly increased platelet counts and lower serum cholesterol in the group exposed to 2.0 mg/l. Slightly increased liver weights were noted in the groups exposed to 0.5 or 2.0 mg/l. All remaining animals were normal after a 14 day recovery period.

When a massive dose was administered to dogs (5 000 mg/kg), incoordination, salivation, vomiting, weakness, lacrimation and dilated pupils were observed. Toxicity described in animals repeatedly exposed to near lethal doses included liver changes, increased liver, adrenal and heart weights, as well as decreased kidney and spleen weights. In another study, body weights were lower and changes were noted in the liver, kidneys and thyroids in rats repeatedly fed 2 500 ppm in the diet for 90 days. Dogs fed 50, 250 or 1 250 ppm of the compound for two years had no evidence of toxicity in any exposure group. Mice that were administered 250, 1 250 or 5 000 ppm in the diet for 18 months demonstrated reduced growth rates at 1 250 ppm in females and at 5 000 ppm in males. Higher mortality was noted among female mice in the high dose group. Increased incidences of naturally occurring changes in aging mice, including testicular tubule atrophy and liver effects, were observed at the higher doses. The weight of the scientific data for Bromacil suggests that this is not indicative of a similar response in female mice, other laboratory animals or in man. Additional animal testing indicated that this compound was not teratogenic and was not uniquely toxic to the conceptus.

Carcinogenicity: 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: Several mutagenic screening tests have not found bromacil to be mutagenic.

Reproductive Hazard: No reproductive effects were observed in rats exposed to 250 ppm in the diet for three generations. The compound does not produce heritable genetic damage in animals. Most studies for genetic damage in mammalian and bacterial cells in culture were also negative.

12. ECOLOGICAL INFORMATION

Ecotoxicity is based on the active ingredient toxicity.

Aquatic Toxicity Fish LC₅₀ (96 hr): 36 mg/l (rainbow trout); 127 mg/l (bluegill sunfish); 164 mg/l (carp). Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Aquatic Toxicity Daphnia LC₅₀ (48 hr): 119 mg/l

Aquatic Toxicity Algae EC₅₀ (72 hr): 0.013 mg/l. Highly toxic to algae.

Avian Toxicity LD₅₀: 2 250 mg/kg (bobwhite quail).

Bee Toxicity LD₅₀: Non-toxic to bees.

Biodegradability: Duration of residual activity in soil is c. 5 months. The principle metabolite is 5-bromo-3-sec-butyl-6-hydroxymethyluracil. The major mode for the disappearance of bromacil from most treated soils is microbial degradation. Soil diptheroids, Pseudomonas and Penicillium species are among the organisms involved. Tests show that at increased temperatures and long exposures to sunlight, there is very little loss of the herbicide from dry soil. It does not readily volatilize, change into gas, nor does it photo decompose or break down in sunlight. Laboratory studies show that 5-30 % of bromacil is lost six to nine weeks after application to the soil, as carbon dioxide, an odourless, colorless gas.

Bio-accumulation: Log P_{OW} = 1.87 (pH 5 / pH 7)

Mobility: Highly mobile. Bromacil binds, or absorbs, only lightly to soil particles ($K_{oc} = 32 \text{ g/mt}$), 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 contaminate groundwater.

13. DISPOSAL CONSIDERATION

Pesticide Disposal: Emptied containers retain dust and product residues. Observe all labeled safeguards until container is reconditioned or destroyed. 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 must be disposed of in accordance with national regulations. Waste must be incinerated in a suitable incineration plant holding a permit by the competent authorities.

Package Product Wastes: Dispose of in approved landfill or preferably in a pesticide incinerator. Do not contaminate ponds, waterways or ditches with chemical or used containers. Do not re-use empty container.

14. TRANSPORT INFORMATION

UN No.: 3077

Hazard Class: 9

Packing Group: III

Proper Shipping Name: Environmental Hazardous Substance; Solid; N.O.S (contains Bromacil).

15. REGULATORY INFORMATION

Risk Phrases: R 50/53- Very toxic 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.

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: 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: Bromacil is an herbicide. Bromacil is one of a group of compounds called substituted uracils. These materials are broad spectrum herbicides used for non-selective weeds and brush control on non-crop land, as well as for selective weed control on a limited number of crops. It works by interfering with photosynthesis.

Emergency and First Aid Procedures: The chemical information provided has been condensed from original source documents, primarily from: "Morgan, D.P. 1982 Recognition and management of pesticide poisonings, 3rd ed. U.S. Environmental Protection Agency, Washington, DC. 120 pp". This information has been provided in this form for your convenience and general guidance only. In specific cases, further consultations and reference may be required and is recommended. This information is not intended as a substitute for a more exhaustive review of the literature nor for the judgment of a physician or other trained professional.

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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