

Bromacil 800 WP

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: Bromacil 800 WP
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

Erintrade CC t/a RT Chemicals
Co. Reg. No.: CK2001/036403/23
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 800 g/kg WP
Chemical Name: 5-Bromo-3-Sec-Butyl-6-Methyluracil (IUPAC)
Empirical Formula: C₉H₁₃BrN₂O₂
CAS No.: 314-40-9
RSA Reg. No.: L7934 Act/Wet No. 36 of/van 1947
Namibia Reg. No.: N-AR 1473

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Concentration</u>
Bromacil	≥80%
Inert Ingredients	≤20%

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class III -Slightly hazardous.

Main Hazard: Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing.

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 Media: Water spray, CO₂, dry chemical or foam.

Firefighting: Wear a self-contained breathing apparatus. On small fire use dry chemical, CO₂, 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 contamination. If conditions permit, cool containers / tanks with spray water.

Special Hazards: 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.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal Precautions: Review Section 5 and Section 7 before proceeding with clean-up. Use appropriate personal protective equipment during clean-up.

Environmental Precautions: Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material.

Spills: Dike spill. Prevent material from entering sewers, waterways, or low areas. If spill area is on ground near valuable plants or trees remove top 5 cm of soil after initial clean-up.

7. HANDLING AND STORAGE REQUIREMENTS

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 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 sealed original containers, in a well-aired, fresh and dry storehouse. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from direct sunlight, open flame, 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.

Engineering Controls: Use only with adequate ventilation. Keep container tightly closed.

Personal Protective Equipment:

Clothing: Long-sleeved shirt, long pants and shoes plus socks. Employee must wear appropriate protective clothing and equipment to prevent prolonged skin contact with this product. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not re-use them. Follow manufacturer instructions for cleaning and maintaining PPE.

Gloves: Chemical resistant gloves Category A (e.g. butyl rubber, natural rubber, neoprene rubber or nitrile rubber)

Eye Protection: Wear eye protection.

Respirator: Avoid inhaling fumes or spray drift. During periods of abnormal exposure to heavy dust or mist, use a NIOSH mist respirator. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Other Protection: PPE required for early entry to treated areas that is permitted under the worker protection standard and that involves contact with anything that has been treated, such as plants, soil or water. 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: White powder.

Vapor Pressure: 0.1 mPa (100 °C)

Solubility in Water (25 °C): 8.5 mg/l

Suspensibility: ≥ 80%

Fineness (pass through 75 µm wet sieve): 98% min.

Wetting Time: ≤1 minutes

pH Value: 4 – 10

10. STABILITY AND REACTIVITY

Stability: The product is stable when stored under normal storage conditions at normal temperatures. It will decompose gradually in strong acids. Its water-soluble formulations cannot mix and formulated with ammonium sulfamate, toluene and amino-trianole liquid formulations.

Conditions to Avoid: No data available.

Incompatible Materials: Incompatible with amines, particularly primary amines.

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 (72 hr): 38 ppm (rainbow trout). 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 g/ml), 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: Do not contaminate water supply, food or feed by storage or disposal. Wastes resulting from the use of this product must be disposed of at an approved waste disposal facility. Treatment, storage, transportation, and disposal must be in accordance with applicable regulations. Do not flush to surface water or sanitary sewer system. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters. Bromacil is known to leach through soil and has been found in ground water as a result of normal field use. Users are advised not to apply in areas where soils are permeable, particularly where ground water is used for drinking water. Consult with the pesticide state lead agency for information regarding soil permeability and aquifer vulnerability in your area.

Container Disposal: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration. Refer to applicable regulations, as well as industry standards.

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: R50/53- 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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