

SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

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Substance:	bromacil plus terbuthiuron
Product Name:	BROMURON
Product Use:	herbicide
Creation Date:	October 2007
Revision Date:	December 2011

24 Hr Emergency Number: 082 771 2712

In case of Poisoning:

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

In case of Spillage:

HAZMAT: 0800 147 112

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Active ingredients	Tebuthiuron 250 g/l plus Bromacil 250 g/l
Chemical Name(s)	1-(5-(t-butyl)-1,3,4-thiadiazol-2-yl)-1, 3-dimethylurea 5-bromo-3-sec-butyl-6-methyluracil
CAS No(s).	34014-18-1 314-40-9
Chemical Family	urea/uracil
Chemical Formula	Mixture

Use: A Non-selective root absorbed granular herbicide with extended residual action for the control of undesirable vegetation on non-crop land and on industrial sites.

Formulation: Water soluble granule

Symbols: Xi
Indication of danger: Irritant
Risk-phrase(s): R20/22, R36/38, R50

SECTION 3 - HAZARD IDENTIFICATION

Main hazard: Dangerous for the environment

Biological hazards:

May be absorbed from the gastro-intestinal tract, through the intact skin, and through inhalation of fine mist.

Eye contact: Irritating to eyes.

Skin contact: Irritating to skin.

Ingestion: Toxic if ingested in large amounts.

Inhalation LC50: No information available on the formulated product.

SECTION 4 - FIRST AID MEASURES AND PRECAUTIONS

Bromuron is a low toxicity herbicide.

Inhalation:

Move patient from the toxic environment to fresh air. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis.

Skin contact:

Wash exposed area extremely thoroughly with soap and water. A physician may need to examine the area if irritation or pain persists after washing.

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Eye contact:

Exposed eyes should be irrigated with copious amounts of room temperature water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist after 15 minutes of irrigation, an ophthalmologic examination should be performed.

Ingestion:

Emesis may be indicated in substantial recent ingestions. Contraindications to emesis induction include: **signs of oral, pharyngeal, or esophageal irritation; a depressed gag reflex; or central nervous system excitation or depression. If these are present or likely, EMESIS SHOULD NOT BE INDUCED.** Emesis is most effective if initiated within 30 minutes of ingestion.

Advice to the physician

Carefully observe patients with inhalation exposure for the development of any systemic signs or symptoms and administer symptomatic treatment as necessary. **There is no specific antidote.** Administer 100% humidified supplemental oxygen with assisted ventilation as required. Exposed skin and eyes should be copiously flushed with water. There are no specific antidotes for poisoning by these herbicides. In the case of suicidal ingestions, particularly, the possibility must always be kept in mind that multiple toxic substances may have been swallowed.

1. If large amounts of herbicide have been ingested, and if the patient is fully alert, induce emesis with Syrup of Ipecac, followed by several glasses of water. Dosage for adults and children over 12 years: 30 ml; dosage for children under 12 years: 15 ml. When vomiting has stopped, give activated charcoal. Add sorbitol to the charcoal slurry unless diarrhea has already commenced. If, for some reason, the patient is not fully alert, put in place a cuffed endotracheal tube to protect the airway, then aspirate and lavage the stomach with a slurry of activated charcoal. Leave a quantity of charcoal, with sorbitol, in the stomach before withdrawing the stomach tube. Repeated administration of charcoal at half or more the initial dosage every 2-4 hours may be beneficial.
2. If the amount of ingested was small, if effective emesis has already occurred, or if treatment is delayed, administer the activated charcoal and sorbitol by mouth.
3. If serious dehydration and electrolyte depletion have occurred as a result of vomiting and diarrhea, monitor blood electrolytes and fluid balance and administer intravenous infusions of glucose, normal saline, Ringer's solution, or Ringer's-lactate to restore extracellular fluid volume and electrolytes. Follow this with oral nutrients as soon as fluids can be retained. Fluids serve to support excretion of the toxicants.
4. Supportive measures are ordinarily sufficient for successful management of excessive exposures to tebuthiuron. If the patient's condition deteriorates in spite of good supportive care, the operation of an alternative or additional toxicant should be suspected.

SECTION 5 - FIRE-FIGHTING MEASURES

Special hazards: There is no fire or explosion hazard.

Extinguishing media:

Extinguish **small fires** with carbon dioxide, dry powder, halon or alcohol-resistant foam. Water spray or fog can be used for **larger fires** or cooling of unaffected stock, but avoid the accumulation of polluted runoff from the site. Remove container from fire area if possible. Contain fire control water for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Avoid inhaling hazardous vapours. Keep material away from water sources and sewers. Do not touch material and avoid breathing dusts and fumes. Keep upwind.

Protective clothing:

Fire may produce irritating or poisonous vapours (toxic oxides of carbon and nitrogen), mists or other products of combustion. Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill:

Keep out unprotected persons and animals. Do not touch spilled material; stop leak if you can do it without risk.

Earth all equipment used when handling the product. Do not touch or walk through spilled material. Stop leak if possible without risk. Avoid runoff of product into sewers, water systems, basements or confined areas as it may cause fire/explosion. A vapour-suppressing foam could be used to reduce vapours. Thoroughly wash body areas, which come into contact with the product.

For spills: Use clean, non-sparking tools to collect absorbed material. Soak up with absorptive material such as damp earth or sand or other suitable non-combustible absorbent material. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Prevent material from spreading by damming in with absorptive material. Do not flush spilled material into drains. Keep spectators away and upwind.

To decontaminate spill area, tools and equipment, wash with a suitable solution (i.e. organic solvent, detergent bleach or caustic). Add the solution to the drums already collected. Label drums with its content and dispose it in accordance with local regulations.

Open burning or dumping of this material is prohibited.

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SECTION 7 - HANDLING AND STORAGE REQUIREMENTS**Storage stability:**

Stable under normal storage conditions.

Incompatibility:

Stable in aqueous media between pH 5 and 9. Hydrolyzed at higher temperatures by strong alkalis and strong acids. It is compatible with other herbicides.

Hazardous decomposition products:

Thermal decomposition may release toxic oxides of carbon, nitrogen and sulfur.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

It is usually safe to use the product without a mask or respirator. If the product is used in dusty or confined conditions, a mask or respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

Wear safety goggles or face shield.

Emergency eye wash: 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.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	A water soluble granule
Odour:	Paint like smell.
Flammability:	Not flammable.
Explosive properties:	Non explosive.
Flash point:	Not flammable.
Oxidising properties:	Not oxidative.

SECTION 10 - STABILITY AND REACTIVITY**Storage stability:**

Stable under normal storage conditions.

Incompatibility:

No information available.

Hazardous decomposition products:

Thermal decomposition may release toxic oxides of carbon, nitrogen and sulfur.

SECTION 11 - TOXICOLOGICAL INFORMATION**Acute oral LD50 :**

Tebuthiuron:	3 946 mg/kg (male rats)
Bromacil:	2 000 mg/kg in rats.

Acute dermal LD50:

Tebuthiuron:	> 3 293 mg/kg (male and female rats)
Bromacil:	> 5000 mg/kg in rats.

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Acute inhalation LC50 (4h) :

Bromacil technical: > 4,8 mg/ _DLU

Tebuthiuron technical: > 3.696 mg/ _DLU

Acute skin irritation: Moderate skin irritant.**Acute eye irritation:** Moderate eye irritant.**Dermal sensitisation:** No dermal or systemic evidence of contact hypersensitivity are expected.**Tebuthiuron other effects****Carcinogenicity:**

Animal studies did not detect any carcinogenic activity. No human information available.

Teratogenicity:

No evidence of teratogenicity

Mutagenicity:Tebuthiuron Technical did not exhibit genetic activity on *Salmonella typhimurium* strains used, or mutagenic activity in a micronucleus study in mice.**Bromacil other effects:****Carcinogenic effects:** There is limited evidence that bromacil causes cancer in animals receiving high doses over the course of their lifetimes**Mutagenic effects:** Several mutagenic screening tests indicate that bromacil is not mutagenic**Teratogenic effects:** There was no evidence of birth defects in the offspring of rats that were given dietary doses of 12.5 mg/kg/day bromacil, nor in rabbits that were given 7.5 mg/kg/day on days 8 through 16 of pregnancy. However, toxic effects and developmental abnormalities of the musculoskeletal system were seen in the embryos or fetuses of rats which inhaled very high bromacil doses of 38 mg/L for 2 hours daily, during days 7 to 14 of pregnancy. These data suggest that humans are unlikely to suffer teratogenic effects from bromacil under normal circumstances.**SECTION 12 - ECOLOGICAL INFORMATION****ECOTOXICOLOGY:****Birds:** Not toxic to birds.

Tebuthiuron: Oral LD50 > 2 000 mg/kg (- mallard ducks)

Bromacil: Oral LD50 2 250 mg/kg (bobwhite quail)

Fish: Harmful to fish.Tebuthiuron: 96 hour LC50 : 31.07 mg/l (*Brachydanio rerio*)96 hour LC50 : 144,0 mg/l (*Rainbow trout*)Bromacil: 48 hour LC50 : 75 mg/l (*Rainbow trout*)**Daphnia:** Not toxic to daphnia.Tebuthiuron: 48 hour EC50 - 155.23 mg/l (*Daphnia similis*)

Bromacil: 48 hour EC50 - 119 mg/l

Algae(LC50) 72h: Bromacil is toxic to algae.

0,013mg/l

ENVIRONMENT/SOIL :

Tebuthiuron: Some microbial breakdown occurs in soil, but this is not the predominant mode of degradation. Loss due to photodecomposition and volatilization is negligible. Half-life in soil is considerably greater in soils with low moisture content, and in high organic soils.

Bromacil: Duration of residual activity in soil is c. 5 months.

Tebuthiuron: 12 to 15 months.

SECTION 13 - DISPOSAL CONSIDERATION**Pesticide disposal:**

Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed should be disposed of in a landfill approved for pesticide disposal. Do not contaminate rivers, dams or any other water sources with the product or used containers. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

Package product wastes:

Emptied containers retain vapour and product residues. Observe all labelled safeguards. TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container.

Destroy the emptied containers by perforation and flattening. Bury in an approved dump site. Do not re-use the empty container for any other purpose.

Comply with any local legislation applying to disposal.

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SECTION 14 - TRANSPORT INFORMATION**UN NUMBER:** 3082**ADR/RID:**

Substance: Environmentally hazardous substance, liquid, n.o.s. (Bromacil 50 g/kg plus Tebuthiuron 50 g/kg).

Substance ID no.: 3082

Hazard ID no.: 90

Label: 9

Item no.: 11 0(c)

IMDG/IMO:

Packaging group: III

Label of class: 9

Shipping name: Environmentally hazardous substance, liquid, n.o.s (Bromacil 50 g/l plus Tebuthiuron 50 g/l).

ICAO/IATA:

Proper Shipping name: Environmentally hazardous substance, liquid, n.o.s (Bromacil 50 g/l plus Tebuthiuron 50 g/l).

Class: 9

Hazard Label: Miscellaneous.

Packaging group: III

Passenger Aircraft: Y914 (max 30 kg)

914 (No Limit)

Cargo Aircraft: 914 (No Limit)

SECTION 15 - REGULATORY INFORMATION**Symbol:** Xn Harmful
N Dangerous for the environment.**Risk phrases :****R21** Harmful in contact with the skin.**R22** Harmful if swallowed.**R 50/53** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**Safety phrases:****S 2** Keep out of reach of children.**S 20/21** When using do not eat, drink or smoke.**S 37** Wear suitable gloves.**S60** This material and its container must be disposed of as hazardous waste.**S61** Avoid release to the environment. Refer to special instructions on the label and MSDS.**SECTION 16 - OTHER INFORMATION****Packaging and Labelling:**

Packed in 500 mg & 1, 2, 5, 10, 20 and 25 kg plastic containers or paper/polywoven bags and labelled according to South African regulations and guidelines.

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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