

# Sharda International Africa (Pty) Ltd

P.O. Box 82021, Southdale, 2135, South Africa.

Tel: 031 764 3011, Tel: 087 822 2397

Email: [rsa.regn@shardaintl.com](mailto:rsa.regn@shardaintl.com), Website: <http://www.shardaintl.com>

(Co. Reg. No. 2010/002268/07)

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## SAFETY DATA SHEET

### “Commander GR”

#### 1. IDENTIFICATION OF PRODUCT AND COMPANY

Name of Product: “Commander GR”

**Active Ingredient:** Bromacil: 80 g/kg + Terbutylazine: 120 g/kg

**Product Use:** Herbicides

**Registration holder:** Sharda International Africa (Pty) Ltd

**Address:** P.O. Box 82021, Southdale, 2135

**Contact Tel. No.:** 031-764-3011

**Poison Centres:** UNITAS Hospital: 0800-111-9900  
Tygerberg Hospital: 021-931-6129  
Netcare 911: 082911

#### 2. COMPOSITION

**Hazardous components:**

Bromacil: 80 g/kg

Terbutylazine: 120 g/kg

Related active triazines 0.24 g/kg

EEC Classification: Bromacil: No. 2062451; N: R 50/53

R Phrases: R 50/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the environment. R 40 Possible risks of irreversible effects.

#### 3. HAZARDS IDENTIFICATION

**Pictogram(s)**



**Signal**      **Warning**

**GHS Hazard Statements**

H302: Harmful if swallowed [Warning Acute toxicity, oral]

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H373: Causes damage to organs through prolonged or repeated exposure [Warning Specific target organ toxicity, repeated exposure]

H400: Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

H410: Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

## Precautionary Statement Codes

P260, P264, P270, P273, P301+P312, P314, P330, P391, and P501

(The corresponding statement to each P-code can be found at the GHS Classification page.)

## 4. FIRST AID MEASURES

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 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: 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. Apply artificial respiration if necessary. The patient should be kept under observation for at least 48 hours. Treat symptomatically.

### NOTES TO PHYSICIAN:

Ingestions of small amounts (less than 10mg 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. Dose for adults and children over 12 years: 30 ml. Dose for children under 12 years: 15 ml.

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

- A. INTUBATE stomach and ASPIRATE contents.
- B. LAVAGE stomach with slurry of ACTIVATED CHARCOAL in 0.9% saline.  
Leave 30-50 gm activated charcoal in the stomach before withdrawing  
Tube
- C. SODIUM SULFATE, 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 obtunded 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

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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 SULFATE, 0.25 gm/kg, as described above. There are no specific antidotes for these chemicals. 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.

Product inhaled: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary. Keep warm at rest. Treat symptomatically. Consult a physician after significant exposure.

## 5. FIRE FIGHTING MEASURES

Extinguishing media: Water spray, dry chemical or foam.

Special hazards: Extinguishing media must not be used for safety reasons: high volume water jet (contamination risk). Fires generate poisonous and corrosive fumes containing: carbon oxides, nitrogen oxides and hydrochloric acid. Specific methods: (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.

Protective clothing: In case of major fires, wear a self-contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

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 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 use water to collect spilled product. 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 approved industrial vacuum cleaner for removal.

Large spills: Do not use water to collect spilled product.

## 7. HANDLING AND STORAGE

Suitable material: This product should only be stored or applied using stainless steel, aluminium, fibreglass 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 flame, spark, welder's torch, lighted cigarette or other ignition source.

### Handling/ Storage precautions:

#### Handling:

Keep away from heat and open flame. 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,

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drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the herbicide gets 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.

## **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. Keep away from direct sunlight, open flame, food, seed, animals, children and uniformed persons. Store at temperature not exceeding 40°C. Do not leave in applicators for extended periods.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Occupational exposure limits: Bromacil: ADI (acceptable daily intake) 0.13 mg/kg body weight daily.

1 ppm (10 mg/m<sup>3</sup>) OSHA TWA

1 ppm (10 mg/m<sup>3</sup>) ACGIH TWA

2 ppm ACGIH STEL

1 ppm (10 mg/m<sup>3</sup>) NIOSH

Recommended TWA

Terbuthylazine: ADI 0.0035 mg/kg body weight daily.

Engineering control measures:

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

- Personal protection – respiratory: Avoid inhaling dust. Use effective dust mask.
- Personal protection – hand: Protective (impermeable) gloves.
- 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 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 colour.

pH:

Not applicable.

Boiling point:

Not Applicable

Auto flammability:

Combustible –stable up to the melting point.

Melting point:

Bromacil: 157.5 - 160°C; Terbuthylazine: 177-179°C

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Explosive properties:

Bromacil: Combustible – stable up to the melting point. Airborne Bromacil dust may ignite.

Flash point: Bromacil:

Combustible Terbutylazine > 150°C

Oxidizing properties:

Not available

Flammability:

Non-flammable

Vapour pressure:

Not applicable.

Solubility – water:

Bromacil: 807 mg/l (pH 5), 700 mg/l (pH 7), 1287 (pH 9) at 25°C; Terbutylazine: 8.5 mg/l at 20°C.

Solubility – solvent:

Terbutylazine: 100 g/l dimethylformamide; 40 g/l ethyl acetate; 14.3 g/l octan-1-ol.

Bromacil:

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).

Neurotoxicity:

Bromacil: Not available; Terbutylazine: In case of heavy intoxication, symptoms of excitement and depression of the central nervous system may appear.

## **10. STABILITY AND REACTIVITY**

Conditions to avoid: Avoid sources of heat, free flames or spark generating equipment. Bromacil:

Further information: During processing, dust may form explosive mixture in air.

Incompatible materials: This product should only be stored or applied using stainless steel, aluminium, fibreglass 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.

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

## **11. TOXICOLOGICAL INFORMATION**

Acute toxicity: Formulation can be harmful or fatal if swallowed. Terbutylazine:

Skin and eye – acute dermal LD50 for rats > 2000 mg/kg; Acute oral LD50 for rats 1590 - > 2000 mg/kg.

Bromacil: Acute oral LD50 for rats 5175 mg/kg; Skin and eye – acute dermal LD50 for rats > 5000 mg/kg.

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Skin and eye contact: Bromacil: Mild eye and skin irritant. Non-sensitizing to skin. When Bromacil was put in the eyes of rabbits, there was irritation in the conjunctiva, the mucous membrane lining the eye, but there was no injury to the cornea, the transparent portion of the eyeball.

Terbuthylazine: No skin or eye irritation; not a skin sensitizer. Contact and noncontact re-entry: When fully dry.

Chronic toxicity: Bromacil: NOEL (no observable effect level) – In 2 year feeding trials, 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. There was no evidence of teratogenicity or carcinogenicity in these chronic studies. Terbuthylazine: NOEL (12 months) for dogs 0.4 mg/kg daily; (lifetime) for rats 0.35 mg/kg daily; 2 year for mouse 16.8 mg/kg daily; ADI 0.0035 mg/kg.

Carcinogenicity: See section 3.

Mutagenicity: Bromacil: Several mutagenic screening tests have not found Bromacil to be mutagenic.

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

## **12. ECOLOGICAL INFORMATION**

Aquatic toxicity – fish: Bromacil: LC50 (96h) for rainbow trout = 36 mg/l; Bluegill sunfish 127 mg/l; Carp = 164 mg/l. (Note: Very toxic to aquatic organisms may cause long term adverse effects in the aquatic environment).

Terbuthylazine: LC50 (96 h) for rainbow trout = 3.8 – 4.6 mg/l; Bluegill sunfish 52 mg/l; Carp and catfish 7.0 mg/l.

Aquatic toxicity – daphnia: Bromacil: LC50 (48h) = 119 mg/l;

Terbuthylazine: LC50 (48 h) 21.2 mg/l.

Aquatic toxicity – algae: Highly toxic to algae. Bromacil: EC50 / 72h / algae = 0.013 mg/l

Biodegradability: Terbuthylazine: Microbial degradation proceeds mainly by de-ethylation and hydroxylation, with eventual ring cleavage. DT50 30-60 days in biologically active soil. Bromacil: 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 diphtheroids, 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, or change into a 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, colourless gas.

Bio-accumulation: Bromacil: Log POW = 1.87 (pH 5 / pH 7)

Mobility: Bromacil: Highly mobile. Bromacil binds, or adsorbs, only lightly to soil particles (Koc = 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 can contaminate groundwater. Terbuthylazine: Leaches only slightly. Adsorption on soils is strong: Kd 2.2-25, Koc 162-278 are typical values for light agricultural soils.

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## **13. DISPOSAL CONSIDERATIONS**

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

Disposal of packaging: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is cleaned, reconditioned, or destroyed. Rinse empty container three times with a volume of water equal to at least one tenth of that of the container. Add the rinsing's to the spray tank before perforating and flattening the container. Dispose of in approved landfill or preferably in a pesticide incinerator. Containers that are in good condition may be returned to a drum re-conditioner for reuse with the same type of pesticide product. Do not contaminate ponds, waterways or ditches with chemical or used container. Do not reuse empty container.

## **14. TRANSPORT INFORMATION**

UN no: Bromacil: 3077

Substance identity no: CAS NO 314-40-9 (Bromacil); 5915-41-3  
(terbuthylazine)

ADR/RID class: Bromacil: Class 9

ADR/RID item no: Bromacil: Item 12 [c]

ADR/RID hazard identity no: HI-No: 90

IMDG – shipping name: Bromacil: 3077 ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, SOLID, N.O.S. (Contains Bromacil) 9, 12(c), ADR

IMDG – class: 9

IMDG – packaging group: Bromacil: III

IMDG – EMS no: None

IMDG – MFAG table no: None

IATA – shipping name: Environmentally hazardous substance, solid.

IATA – class: 9

IATA – subsidiary risk(s): None

ADNR – class: 9

UK – description: Environmentally hazardous substance, solid.

UK – emergency action class: 2x

UK – classification: 9

## **15. REGULATORY INFORMATION**

EEC hazard classification: EC-Directive 67/548

Risk phases: R 50/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the environment. R 40 Possible risk of irreversible effects.

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.

## **16. OTHER INFORMATION**

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NB. 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 nonselective weed and bush control on non-cropland, as well as for selective weed control on a limited number of crops. It works by interfering with photosynthesis, the process by which plants use sunlight to produce energy.

## EMERGENCY AND FIRST AID PROCEDURES:

The chemical information provided has been condensed from original source documents, primarily form: "Morgan, D.P. 1982 Recognition and management of pesticides 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 consultation 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 judgement of a physician or other trained professional.

All information and instructions provided in the Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. It is the responsibility of persons in receipt of this MSDS to ensure that the information herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product.