

Safety Data Sheet (SDS) Orbit GR

According to UN GHS 8th Ed
Revision Date: 30/07/2022

First print date: 01/04/2018
Version: 1.1

SECTION 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

Product identifier:

Identification as on the label/Trade name: Orbit GR

Common name: Bromacil 80g/kg + Terbutylazine (Triazine) 120g/kg GR

Relevant identification uses of the substance and uses advised against:

Identified uses: Herbicide

Uses advised against: Use only as directed.

Details of the supplier of the Safety Data Sheet:

Enviro Bio-Chem (Pty) Ltd, 44 Kerk Street,
Lichtenburg, North West, South Africa, 2740

Details of the Registration Holder:

Enviro Industries (Pty) Ltd, 44 Kerk Street,
Lichtenburg, North West, South Africa, 2740

Contact Details:

Telephone: +27 87 231 7261

Fax: 086 541 7948

Website: www.envirobiochem.co.za

Emergency telephone numbers:

24 Hour Emergency Number: Bateleur: +27 83 123 3911

Griffon Poison Information Centre: +27 82 446 8946

Poisons Information Helpline: 0861 555 777

Tygerberg Hospital: +27 21 931 6129

SECTION 2. HAZARD IDENTIFICATION

Classification of the substances or mixture

The mixture is classified according to SANS 10234:2019, Regulation EC 1272/2008 [EU-GHS/CLP]

Hazard classes/Hazard categories	Hazard statement
STOT RE (Category 2)	H373
Aquatic toxicity acute (Category 1)	H400
Aquatic toxicity chronic (Category 1)	H410

For full text of H statements see section 16

The most important adverse effects

The most important adverse physiochemical effects: None known

The most important adverse human health effects: May cause damage to organs through prolonged or repeated exposure

Label elements



Hazard pictograms

Signal Word: Warning

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Hazard Statements:

H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Precautionary Statements:

P102	Keep out of reach of children
P103	Read label before use
P264	Wash hands, forearms, and face thoroughly after handling
P270	Do not eat, drink, or smoke when using this product.
P260	Do not breathe dust.
P273	Avoid release to the environment.
P403	Store in a well-ventilated place.
P501	Dispose of contents/container in accordance with local/regional/ national/international

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture: **Mixture**

Ingredients:

Substance name (IUPAC)	CAS Number.	Concentration % by weight	Classification EC1272/2008
Terbutylazine	5915-41-3	12.27%	Acute Toxicity -Oral (Category 4) H302 STOT RE (Category 2) H373 Aquatic Acute (Category 1) H400 Aquatic Chronic (Category 1) H410
Bromacil	314-40-9	<10%	Acute Toxicity -Oral (Category 4) H302 Aquatic Acute (Category 1) H400 Aquatic Chronic (Category 1) H410

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4. FIRST AID MEASURES

Description of first aid measures:

In case of inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if you feel unwell.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Seek medical attention immediately.

In case of eye contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

In case of ingestion: Do NOT induce vomiting. Rinse mouth. Call the POISON CENTRE or a doctor if you feel unwell. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt, or waistband.

Most important symptoms and effects, both acute and delayed:

Anticipated acute effects: May be harmful if swallowed.

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Anticipated delayed effects: May cause damage to organs through prolonged or repeated exposure

Symptoms of exposure to the product : None known

Indication of any immediate medical attention and special treatment needed:

Treat symptomatically and supportively. No specific antidote known. If large amounts have been ingested, perform gastric lavage and administer activated charcoal.

SECTION 5. FIRE FIGHTING MEASURES

Extinguisher media:

Suitable extinguisher media: Foam. Dry powder. Carbon dioxide. Water spray.

Small Fire: Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam.

Large Fire: Water spray can be used for larger fires or cooling of unaffected stock but avoid the accumulation of polluted run-off from the site.

Unsuitable extinguishing media: Do not use high volume water jet, due to contamination risk.

Special hazards arising from the mixture:

Fire Hazard: The material does not burn or burns with difficulty. It is not explosive. Airborne Bromacil dust may ignite.

Hazardous decomposition products in case of fire: Refer to Section 10: Stability and Reactivity.

Advice for fire-fighters:

Avoid inhaling hazardous dust vapours. Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Use an approved/certified respirator or equivalent.

Contain fire control agents for later disposal according to Section 13.

Water can be used to cool unaffected containers.

SECTION 6. ACCIDENTAL RELEASE

Personal precautions, protective equipment, and emergency procedures:

For non-emergency personnel: Keep all personnel away .Avoid contact with eyes and skin.

For emergency responders: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Use an approved/certified respirator or equivalent Avoid contact with eyes and skin. Do not breathe in fumes. Refer to section 8 for recommended personal protective equipment. Evacuate unnecessary personnel.

Environmental precautions:

Stop leak if without risk. Prevent entry into drains, watercourses, or confined areas; dike if needed. If the product contaminates public water, inform appropriate authorities immediately in accordance with local regulations.

Dispose in a safe manner in accordance with local/national regulations.

Methods for containment and cleaning up:

For small spills: Clean up promptly. Do not use water to collect spilled product. Absorb with materials such as: sand, earth, vermiculite, or diatomaceous earth. Do not flush spilled product into drains. If spill area is on ground near trees or other valuable plants, remove top 5 cm of soil after initial clean-up. Wear PPE. Collect in suitable and properly labelled containers.

For large spills : Isolate area and keep unauthorized personnel away. Contain spilled material if possible. Clean up promptly. Do not use water to collect spilled product. Absorb with materials such as: sand, earth, vermiculite, or diatomaceous earth. Do not flush spilled product into drains. If spill area is on ground near trees or other valuable plants, remove top 5 cm of soil after initial clean-up. Wear PPE. Collect in suitable and properly labelled containers.

Reference to other sections:

See section 1 for emergency contact details

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See section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See section 13 for information on disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing. Keep away from heat and open flames. Use with adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed.

Workers should wash hands and face before eating, drinking, and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Protective measures: Observe directions on label and instructions for use.

Advice on general occupational hygiene: Do not eat drink or smoke when handling this product.

Conditions for safe storage, including incompatibilities:

Store in original containers. Store product in a segregated and approved area. Keep container in a cool, well-ventilated area at temperatures not exceeding 40°C Keep container tightly closed and sealed until ready for use. Keep under lock and key out of reach of unauthorized persons, children, and animals. Store away from incompatible substances.

Provide adequate exhaust ventilation in areas where dust may form. Do not leave in applicators for extended periods.

Specific end uses:

Use as directed. Use original container.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

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

Occupational Exposure Limits (Bromacil): NIOSH REL 1 ppm (10 mg/m³) TWA

Exposure control:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. A Risk Assessment should be conducted before handling is to commence to determine specific exposure control.

Appropriate engineering controls: Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Hygiene measures: Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Use splash proof safety glasses .

Hand protection: Use chemical resistant gloves. Examples of preferred glove barrier materials include Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, Polyvinyl alcohol, Polyvinyl chloride.

Body protection: Appropriate impervious clothing is required to prevent skin contact with the product, apron, rubber boots.

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Respiratory protection: Avoid inhaling dust. For most well-ventilated conditions, no respiratory protection should be needed. If used in a poorly ventilated area (airborne concentrations exceed exposure limits), use a dust mask or NIOSH approved air-purifying respirator.

Environmental exposure controls: Prevent product from entry into sewers and water courses.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Granular
Colour	Light grey/ brown
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point / freezing point (°C)	157.5 – 160 °C for Bromacil & 177-179 °C for Terbutylazine.
Boiling point (°C) (Bromacil)	No data available
Flash point (°C)	Terbutylazine > 150 °C.
Evaporation rate	No data available
Flammability	Non flammable
Upper /lower flammability limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density (25°C)	No data available
Water solubility (g/l) at 25°C	(Bromacil) 807 mg/ℓ (pH 5), 700 mg/ℓ (pH 7), 1 287 mg/ℓ (pH 9) (Terbutylazine) 8.5 mg/ℓ at 20 °C.
Partition coefficient : n-octanol/water	No data available
Auto-ignition temperature (°C)	No data available
Decomposition temperature (°C)	No data available
Viscosity, dynamic (mPa s)	No data available
Explosive properties	Airborne Bromacil dust may ignite.
Oxidising properties	No data available
Explosive limits	No data available

SECTION 10. STABILTY AND REACTIVITY

Reactivity:

None known

Chemical stability:

Stable under normal storage conditions for 2 years. Avoid excessive heat sources. Subjected to hydrolysis and unstable in alkaline media.

Possibility of hazardous reactions:

No information available.

Conditions to avoid:

Avoid excessive heat and ignition sources. During processing dust may form explosive mixtures in the 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

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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, or other ignition source. Do not mix with other herbicides or pesticides except for products stated on the product label.

Hazardous decomposition products:

Decomposes in the presence of strong acids and poses a fire and explosion hazard in the presence of strong oxidizers. Stable in aqueous solutions.

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x), Sulfur oxides Oxides of phosphorus.

Other decomposition products - No data available

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicokinetics, metabolism and distribution: No data available

Information on toxicological effects:

Assessment of acute toxicity:

The product has not been tested. The data reported is for the main ingredients in the mixture.

Terbutylazine CAS No. 5915-41-3	
Acute toxicity:	
Acute Oral LD50 (rat)	1590-2000 mg/kg
Acute Dermal LD50 (rabbit):	>2000 mg/kg
Acute Inhalation LC50 - 4 h (rat)	>5.3 mg/l
Skin irritation/ corrosion	Not a skin irritant
Eye damage / irritation	Not an eye irritant
Respiratory or skin sensitization	Not a skin sensitiser
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific Target Organ Toxicity STOT single exposure	No data available
Specific Target Organ Toxicity STOT repeated exposure	May cause damage to organs through prolonged or repeated exposure
Aspiration hazard	No data available

Bromacil CAS No. 314-40-9	
Acute toxicity:	
Acute Oral LD50 (rat-female)	1300 mg/kg
Acute Dermal LD50 (rabbit):	>5000 mg/kg
Acute Inhalation LC50 - 4 h (rat)	>5.6 mg/l
Skin irritation/ corrosion	Moderate skin irritant
Eye damage / irritation	Mild eye irritant
Respiratory or skin sensitization	Not a skin sensitiser
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific Target Organ Toxicity STOT single exposure	No data available
Specific Target Organ Toxicity STOT repeated exposure	No data available
Aspiration hazard	No data available

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12. ECOLOGICAL INFORMATION

Terbutylazine CAS No. 5915-41-3	
Toxicity	
Birds Acute oral LD50 Dietary LC50 8 days	>1000 mg/kg Bobwhite quail and Mallard ducks >5620 mg/kg diet Bobwhite quail and Mallard ducks
Aquatic Toxicity Fish LC ₅₀ (96 hr) Aquatic Toxicity Daphnia EC ₅₀ (48 hr) Toxicity to algae – static test E.C50 (96h) Toxicity to bees LD ₅₀ (oral and contact) Toxicity to worms LC50 (14d)	2.2 mg/l Rainbow trout ; 52 mg/l, Bluegill sunfish >69.3 mg/l 0.016 mg/l for green algae (<i>Scenedesmus subspicatus</i>) >193 µg/bee. >283-1000 mg/kg soil (earthworms)
Persistence and degradability	In aerobic soils, dissipation is mainly due to microbial activity with the formation of metabolites by de-ethylation and hydroxylation, with eventual ring cleavage, and the formation of non-extractable residues (8-27% after 98d). Median DT50 (field) 17.4 (6.5-149, 9 sites). Adsorption on soils is medium K _{oc} 224 (162-333, 12 soils), median K _f 3.0 (0.3-25.2, 12 soils) Terbutylazine is only slightly mobile. In water sediment systems, terbutylazine dissipates with a DT50 of 33-73 d in the whole system.
Bioaccumulation potential	No data available
Mobility in Soil	No data available
Result of PBT and vPvB assessment	No data available
Other adverse effects	No data available

Bromacil CAS No. 314-40-9	
Toxicity	
Birds Acute oral LD50 Dietary LC50 8 days	2250 mg/kg Bobwhite quail; 0.9-1.2 mg/kg Mallard ducks >10000 mg/kg diet Mallard ducks and Bobwhite quail
Aquatic Toxicity Fish LC ₅₀ (96 hr) Aquatic Toxicity Daphnia LC ₅₀ (48 hr) Toxicity to algae – static test E.C50 (96h) Toxicity to bees LD ₅₀ (contact)	36 mg/l Rainbow trout ; 127 mg/l, Bluegill sunfish 121 mg/l 6.8 ppb for green algae (<i>Selenastrum capricornutum</i>) Nontoxic to bees >193 µg/bee.
Persistence and degradability	The principal metabolite is 5-bromo-secbutyl-6-hydroxymethyluracil. Duration of residual activity in soil is c. 5 months.
Bioaccumulation potential	No data available
Mobility in Soil	No data available
Result of PBT and vPvB assessment	No data available
Other adverse effects	Toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

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Waste treatment methods:

Product:

Keep out of drains, sewers, ditches, and waterways. Refer to container label for disposal information. Treat as hazardous waste and dispose of in accordance with local/ regional/ national/ international regulations.

Container:

Refer to container label for disposal information. Triple or pressure rinse empty containers. Pour rinse water into spray tank. Dispose of as hazardous waste. Do not contaminate water when disposing of rinse water. Dispose of using an approved waste disposal service provider. Follow all local/ regional/ national/ international regulations.

SECTION 14. TRANSPORT INFORMATION

UN Number	3077
UN proper shipping name	Environmentally Hazardous, Solid, N.O.S. (Bromacil 80g/kg & Terbutylazine 120 g/kg).
Transport hazard class	9
Packaging group	III
Marine pollutant	Yes

SECTION 15. REGULATORY INFORMATION

Safety, health, and environmental regulations/legislation for the mixture:

Relevant information regarding authorization: Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. UN Recommendations on the Transport of Dangerous Goods Model Regulations Rev. 21 (2019), Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 8, 2019.

Relevant information regarding restrictions:

EU regulations: Regulation EC 1272/2008 [EU-GHS/CLP]

Other National regulations:

National Road Traffic Act, 1996 (ACT NO. 93 of 1996).

SANS 10228:2012- The identification and classification of dangerous goods for transport by road and rail modes.

National Environmental Management Waste Act 59 of 2008.

Act 36 of 1947 of the Republic of South Africa. This product is registered under 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

Chemical Safety Assessment carried out? No

SECTION 16. OTHER INFORMATION

Indication of changes:

Classification according to SANS 10234:2019, Regulation EC 1272/2008 [EU-GHS/CLP]
GHS aligned – all sections

Relevant H statements (number and full text):

H302-Harmful if swallowed

STOT RE (Category 2) – Specific Target Organ Toxicity (Category 2): Causes damage to organs through prolonged and repeated exposure

Aquatic acute toxicity (Category 1): Very toxic to aquatic life

Aquatic chronic toxicity (Category 1): Very toxic to aquatic life with long lasting effects.

Training instructions:

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Use as indicated on the label, special training may be required for application.

Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

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.