

UNIVERSAL BENDIOXIDE 480 SL

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: BENDIOXIDE 480SL
 Herbicide
UN No. 3082
Supplier: Universal Crop Protection (Pty) Ltd.
Co. Reg. No.: 1983/008184/07
 PO Box 801,
 Kempton Park, 1620, South Africa
Telephone: (011) 396 2233
Fax: (011) 396 4666
Website: www.villacrop.co.za

Emergency telephone numbers:

24 Hr Transport / Spill emergency no:

Envirosure. +27 31 205 4918
 (Hazcall24) +27 86 044 4411
 (Client: Villa Crop Protection)
 Griffon Poison Information Centre +27 82 446 8946
 (Client: Villa Crop Protection)

Poisoning Emergency telephone numbers:

Griffon Poison Information Centre +27 82 446 8946
 Poisons Information Centre +27 861 555 777

Villa Crop Protection Emergency number:

National Safety, Health and Environmental Manager:
 +27 63 698 0668

2. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: Bendioxide / Bentazone
Chemical Name: 3-isopropyl-1H-2,1,3-benzothiadiazin-4(3H)-one 2,2-dioxide (IUPAC)
CAS No.: 25057-89-0
Chemical family: benzothiadiazinone
Chemical formula: C₁₀H₁₂N₂O₃S
Molecular weight: 240.3

Use: Selective contact herbicide, absorbed mainly by the foliage, with little translocation, but also absorbed by the roots, with translocation acropetally in the xylem. It is a photosynthetic electron transport inhibitor at the photosystem II receptor site.

Formulation: Bendioxide 480 g/l
 Soluble Liquid

Ingredients:	Hazard/risk:	% present:
Bendioxide	Xi	48 %
Neutralizer	C	7 to 8 %
Water	-	up to 100 %

Symbol: C, Xn

Indication of danger: Corrosive, Harmful

Risk Phrases: R21/22, R36/38, R52.

3. HAZARD IDENTIFICATION

Toxicity class: WHO: III (a.i.);
Main hazard: The product is considered of low toxicity. No adverse effects from exposure have been reported.
Ingestion: Product is harmful if swallowed.
Eye contact: May cause moderate eye irritation.
Skin contact: Moderate irritant to skin. Harmful if absorbed through the skin. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
Inhalation: Harmful.

4. FIRST AID MEASURES AND PRECAUTIONS

Acute poisoning by **Bentazone/Bendioxide** is unlikely, unless large amounts have been ingested. Human ingestion of high doses of this herbicide has caused vomiting, diarrhoea, trembling, weakness and irregular breathing.

Inhalation: Move the victim to fresh air or remove source of contamination. Keep person warm and at rest. Treat symptomatically and supportively as and when required. Administration of oxygen should be performed by qualified personnel. Get medical attention immediately.

Skin contact:

Move the victim from the source of contamination and remove all contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash affected skin areas gently and thoroughly with water and non-abrasive soap, for at least 15 to 20 minutes. Do not rub the skin. If irritation persists, seek medical advice.

Eye contact: Immediately flush the contaminated eyes with gently flowing clean water for 15 to 20 minutes, occasionally lifting the upper and lower lids. Seek medical advice.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention immediately. Administration of oxygen should be performed by qualified medical personnel. If the person is alert, rinse mouth thoroughly with water and give person glass of water to drink.

Advice to physician: There is no antidote. Treat symptomatically and supportively. In cases of ingestion of large amounts, gastric lavage may be indicated.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard: This product will not burn. Not flammable. Not combustible. Product contains water. **Special Hazards:** On heating, toxic fumes, such as sulphur dioxide and oxides of nitrogen, may be produced. **Extinguishing agents:** Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam.

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Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

Firefighting: Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal. Dyke fire control water for later disposal. Do not scatter the material. Avoid pollution of waterways.

Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

Personal protective equipment: Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus. Do not breathe corrosive fumes from burning material. Keep upwind.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Avoid contact with skin and eyes. Do not breathe in spray or fumes. Ventilate area of spill or leak, especially confined areas. 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: Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

For spills: 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. Label containers with its content and dispose it in accordance with local regulations.

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. Open burning or dumping of this material is prohibited.

Do not get water inside containers.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Harmful in contact with skin and eyes and if swallowed. Avoid contact with eyes and skin, and inhalation of spray and vapour.

Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the product 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: Keep under lock and key and out of reach of unauthorized persons, children and animals. Store in its original labeled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Store away from incompatible substances. Local regulations should be complied with.

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: An approved respirator suitable for protection from mists of pesticides is adequate. Limitations of respirator use specified by the approved 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: The use of safety goggles and face-shield to prevent contact is recommended.

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.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Water soluble liquid solution, with characteristic odour.
Colour: yellowish/brown/amber colour.
Flammability: Not flammable & not combustible.
Flash point: Not applicable. Product is water-based.
Corrosiveness: Not corrosive to metal.
Solubility: Readily soluble in water.
pH: 8 to 10 in 1 % aqueous solution.
Density: 1.088 ± 0.05 g/l

10. STABILITY AND REACTIVITY

Storage stability: Stable for a period of 2 years under normal warehouse and field conditions.
Conditions and Materials to Avoid: Keep the product in a cool, dry place, at below 30 °C. Protect from sunlight, open flame and sources of heat.
Hazardous decomposition products: On heating, toxic fumes, such as sulphur dioxide and oxides of nitrogen, may be produced.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ in rats:
Technical: > 1100 mg/kg
 Formulation, calculated: > 1100 mg/kg
Acute dermal LD₅₀ in rabbits:
Technical: > 4000 mg/kg
 Formulation, calculated: > 4000 mg/kg
Acute inhalation in rats:
Technical: > 5.1 mg/l
Acute skin irritation in rabbits:
 Moderate irritant. May cause allergic reactions in some individuals.
Acute eye irritation in rabbits: May cause moderate eye irritation.
Reproductivity: No data available.
Mutagenicity: No data available.
Carcinogenicity: Tumors have been seen in rats given 200 mg/kg/day, but these results are not conclusive. No apparent indication of carcinogenicity.
Teratogenic and Genotoxicity: **Bentazone** does not appear to be tetratogenic. No indications of genotoxicity were found in several assays.
ADI: 0.1 mg/kg bw/day.

12. ECOLOGICAL INFORMATION

Breakdown: **Bentazone** has a low persistence in soil. Half-life is less than 2 weeks. **Bentazone** is subjected to breakdown by UV light and rapid degradation by soil bacteria and fungi. It does not bind to soil particles and it is highly soluble in water, therefore as strong potential for

groundwater contamination. However, **Bentazone** is rapidly degraded and not expected to contaminate groundwater significantly. **Bentazone** has the potential to contaminate surface water, due to its mobility. It is stable to hydrolysis, but rapidly broken down by sunlight, therefore half-life in water is less than 24 hours.

ECOTOXICOLOGY:

Birds: Slightly toxic to birds.

Oral LD ₅₀ :	bobwhite quail:	1140 mg/kg
8-day diet LC ₅₀ :	bobwhite quail:	> 5000 ppm
	mallard ducks:	> 5000 ppm

Fish: Practically non-toxic to fish, and slightly toxic to aquatic invertebrates.

LC ₅₀ (96hrs):	rainbow trout:	> 100 mg/l
	bluegill sunfish:	> 100 mg/l

Daphnia: LC₅₀ (48 hours): *Daphnia magna*: 125 mg/l

Bio-concentration factor (BCF): 19

Low bioaccumulation potential, considered as a marine pollutant.

Bees: Not toxic to bees. LD₅₀ (oral): > 100 µg/bee

Worms: Not toxic to earthworms.

EC₅₀ (14 days): > 1000 mg/kg soil.

Other organisms: Low toxicity. **Bentazone** is considered not hazardous to most non-target organisms.

13. DISPOSAL CONSIDERATION

Pesticide disposal: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers.

Comply with local legislation applying to waste disposal.

Container disposal: Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining 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 a third of the volume of the container. Add the rinsing to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Comply with local legislation applying to waste disposal.

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14. TRANSPORT INFORMATION

UN NUMBER: 3082
Road Transport ADR/RID:
 Class: 9
 Packaging group: III
 Shipping name: Environmentally Hazardous
 Substance, Liquid, N.O.S.
 (Bendioxide 480 g/l)

Air Transport IATA/ICAO:
 Class: 9
 Packaging group: III
 Shipping name: Environmentally Hazardous
 Substance, Liquid, N.O.S.
 (Bendioxide 480 g/l)

Maritime Transport IMDG/IMO:
 Class: 9
 Packaging group: III
 Shipping name: Environmentally Hazardous
 Substance, Liquid, N.O.S.
 (Bendioxide 480 g/l)

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.

END OF DOCUMENT

Compiled: September 2004
Reviewed: March 2019
Revision no.: (2)
Next revision date: March 2024

For detailed information on revisions, contact the Registration holder.

15. REGULATORY INFORMATION

Symbol: Xn, Xi
Indication of danger: Harmful, Irritant
Risk phrase(s):
R 21/22 Harmful in contact with skin and if swallowed.
R 36/38 Irritating to eyes and skin.
R 52 Harmful to aquatic organisms.
Safety phrases:
S 1/2 Keep locked up and out of reach children.
S 24/25 Avoid contact with skin and eyes.
S 26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 61 Avoid release to the environment.

16. OTHER INFORMATION

Packaging: Packed in 1, 5, 10, 20 and 25 litres plastic containers and labeled 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.