

SAFETY DATA SHEET

This Safety Data Sheet was created pursuant to the requirements of:
The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

TERBUTREX 500 SC

Revision date: 22-March 2023

Version: 2

Supersedes Date:

28-February-2021

Print date: 2-March 2023

1. Product and Company Identification

Identification of the product/preparation

Product Name	TERBUTREX 500 SC
Trade Name/Synonyms	Terbutryn
Registration Number	L7386
Product Description and Formulation Type	A suspension concentrate herbicide.

Active Ingredient

Atrazine

Formula	Terbutryn – C ₁₀ H ₁₉ N ₅ S
CAS Number	886-50-0

Supplier, Manufacturer, and/or Importer

Supplier

Company Name	ADAMA SOUTH AFRICA (PTY) LTD
Address	Ground Floor, Simeka House The Vineyards Office Estate 99 Jip de Jager Drive Belville 7530
Phone Number	+27 21 982 1460
Web-Address	www.adama.com

Emergency Phone Numbers

Nature of Emergency	Emergency Operator	Telephone Number
24 Hour Poisoning Emergency Helplines – National Advisory Bodies	Griffon Poison Information Centre	+27(0)82 446 8946
	Tygerberg Poison Information Centre:	+27(0)86 155 5777
Spill Response and Transport Incidents	SPILL TECH®	+27(0)86 100 0366 +27 (0)83 253 6618
Product Properties and Hazards	ADAMA South Africa (Pty) Ltd	+27(0)21 982 1460

Relevant identified uses of the product and uses advised against

TERBUTREX 500 is a selective pre-emergence suspension concentrate herbicide for the control of broad leaf weeds. The product should not be used for any other purpose or in any other manner contrary to the information supplied on the product label.

2. Hazard(s) Identification

Classification of the substance or mixture

According to the criteria in South Africa - GHS classification and labelling of chemicals – SANS10234 and the Regulations for Hazardous Chemical Agents – 2021.

GHS Classification:

Hazard Class	Category	Hazard Statement Number
Aquatic Toxicity, Acute	1	H400
Aquatic Toxicity, Chronic	1	H410

Label Elements

Pictogram:



Signal Word:

Warning

Hazard Statements:

Statement Number	Hazard Statement
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

General -

Statement Number	Precautionary Statement
P101	If medical advice is needed, have product label or container at hand.
P102	Keep out of reach of children.
P103	Read label carefully and follow all instructions.

Prevention -

Statement Number Precautionary Statement

P273 Avoid release to the environment – if this is not the intended use.

Response – Statement Number Precautionary Statement

P391 Collect spillage.

Disposal - Statement Number Precautionary Statement

P501 Dispose of contents/container to a licensed waste facility and in accordance with local and national regulatory requirements.

Other Hazards

None known.

3. Composition/Information on Ingredients

Mixture

Common Name: TERBUTREX 500 SC
IUPAC/Chemical Name-Active ingredients: 2-*N-tert*-butyl-4-*N*-ethyl-6-methylsulfanyl-1,3,5-triazine-2,4-diamine
Chemical Family: Triazine
Formulation: Terbutryn 500g/L – Suspension Concentrate

Ingredients with Hazard Concerns (GHS)

According to UN GHS criteria (9th Edition of the Purple Book).

Hazardous Component – Chemical Name	CAS Number	Weight - %	International GHS Classification
Terbutryn	886-50-0	40 - 50%	Aquatic Toxicity, Acute, Category 1. M Factor = 100. Aquatic Toxicity, Chronic, Category 1. M Factor = 10.
Monoethylene glycol	107-21-1	<5%	Acute Oral Toxicity, Category 4. STOT RE, Category 2.

NOTE: The other ingredients do not cause or contribute toward the correct GHS classification of TERBUTREX 500 SC and are therefore, in terms of the South African Regulations for Hazardous Chemical Agents - 2021; Regulation 14(b), not listed in the table above.

4. First-Aid Measures

Description of First-aid Measures

General Advice	Provide this SDS to medical personnel for treatment. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Remove contaminated clothing and move the affected person away from the contamination area. Keep the person warm, calm, and comfortable. First Aid personnel should pay attention to their own safety.
Eye Contact	Rinse/flush the eyes gently with water from the eye wash fountain for several minutes (at least 15 minutes), while holding the eyelids apart. Check for and remove contact lenses if easy to do so. Continue rinsing. Obtain medical attention if irritation occurs and persists.
Skin Contact	Remove all contaminated clothing and shoes. Rinse the skin with plenty of water for 15 to 20 minutes under the safety shower. Wash contaminated clothing before re-use. Obtain medical attention if irritation occurs and persists.
Inhalation	Remove the affected victim from exposure to an area with fresh air. Keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention.
Ingestion	Obtain medical attention or call a poison control centre for treatment advice. If conscious, rinse mouth thoroughly with water. Never give anything by mouth to an unconscious or convulsing person. Do not induce vomiting unless directed to do so by a medical professional. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomits.
Emergency Responders	Use personal protective equipment as required.

Most important symptoms/effects, acute and delayed

None known for the product.

Terbutryn – systemic toxicity unlikely unless large amounts are ingested. Could cause eye or skin irritation in sensitive individuals. Skin irritation is possible after prolonged contact.

Exposure may affect the central nervous system causing incoordination, convulsions, or laboured breathing, nausea, diarrhoea, muscle spasms, ataxia, and anorexia.

Indication of any immediate medical attention and special treatment needed

Notes to physician:

Treat symptomatically and supportively.

5. Fire-Fighting Measures

Suitable (and unsuitable) extinguishing media	For small fires use dry chemical, CO ₂ , halon, water spray, fog, or standard foam. For large fires use water spray, water fog or alcohol resistant foam. Contain fire control water for later disposal. Do not use high volume water jets due to potential contamination.
Specific hazards arising from the chemical including thermal decomposition products	Fires involving the product may produce irritating or poisonous vapours: carbon dioxide, carbon monoxide, nitrogen oxides (NO _x), and oxides of sulphur.
Special protective equipment and precautions for fire-fighters	Firefighters must wear emergency equipment including positive pressure self-contained breathing apparatus with a full-face mask. Remove unaffected containers from fire area if possible.
Additional provisions	Stay at maximum distance. Act in accordance with the site's Internal Emergency Plan and the Workplace Specific Procedures for actions to be taken after an accident or other emergencies. Keep container cool by spraying with water.

6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures	As an immediate precautionary measure, isolate spill, or leak area. Do not breathe in fumes/vapour/spray and avoid contact with eyes, skin and clothes. Do not touch or walk through spilled material as it could be slippery when spilt. Contain spills if it can be done without risk and clean-up immediately. Wear appropriate protective clothing recommended in Section 8 of the SDS.
Environmental precautions	Prevent spillage or further leakage if safe to do so. Do not allow the spilt product to enter water courses and drains and avoid contact with soil. Do not allow the spilt product to spread to other areas - keep the spilt material contained and isolated. Do not flush spill into surface water or sanitary sewer system. Report spills and releases as required to appropriate authorities if the spilt product has caused environmental pollution (sewers, water ways, soil, or air). Contaminated soil layers must be dug out and disposed of as hazardous waste.
Methods for cleaning up	For small spills , sweep up with damp absorbent material. Place into a labelled waste container with a shovel and cover for subsequent disposal. Dispose of collected spilt material as hazardous waste. Clean the contaminated surface with water to remove any residues of the spilt product. Keep the wash water out of drains, sewers, and waterways. For large spills , do not wash away into sewers - contain/dyke or cover to prevent dispersal using absorbent socks, pillows or pads supplied in a spill

kit. Contain and collect spilt product in suitable containers for proper disposal.

Reference to other SDS sections See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

7. Handling and Storage

Precautions for safe handling Always provide good ventilation in the work area. Prevent contact with eyes, skin, and clothing. Do not breathe in vapours/spray. Wear protective clothing and equipment during handling as described in Section 8 of the SDS. Do not eat or drink whilst using the product. Wash the hands and face thoroughly with soap after handling. Keep containers closed when not in use. Do not permit smoking in use or storage areas. Locate emergency showers and eye-rinsing facility near the work/handling area. Maintain good normal industrial hygiene and housekeeping practices in areas where the product is used/handled. Remove contaminated clothing immediately if the product gets inside. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of work area and work clothing is recommended. Keep unprotected persons away from the area where the product is being applied.

Conditions for safe storage, including any incompatibilities The entrance to storage facilities should be granted only to appropriately trained personnel. Always store locked up. Keep containers tightly closed when not in use and keep product only in the original container. Check storage containers regularly for leaks. The formulation is stable if stored well ventilated, out of direct sunlight, cool and free of moisture and high humidity. Avoid temperatures above 40°C. Keep out of reach of children, uninformed persons, and animals. Protect containers from physical damage. Do not contaminate water, food, or feed by storage or disposal. Avoid cross contamination with other agricultural products. Store away from incompatible materials like strong oxidising agents. It is recommended to have appropriate spill control kits equipped with absorbent material near storage areas (see Section 6). Store in accordance with national and local regulations.

8. Exposure Controls and Personal Protection

Components with workplace control parameters – National Occupational Exposure Limits

An occupational exposure limit has been established for monoethylene glycol by the South Africa Department of Employment and Labour.

Component	Type	Control Parameter	Update	Basis
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	OEL- eight - hour TWA	50 ppm ^(V)	2021	South African RELs*
Monoethylene glycol	OEL- STEL/C	100 ppm ^(V)	2021	South African RELs*
	OEL- STEL/C	20 mg/m ^{3(H)}	2021	South African RELs*

*REL: Recommended Exposure Limit.

OEL- eight-hour TWA: Occupational Exposure Limit – Time Weighted Average. Calculated over an eight-hour working day, for a five-day working week.

OEL-STEEL/C: Occupational exposure limit – short-term exposure limit, ceiling limit

(V) Vapour Fraction

(H) Aerosol only

Appropriate engineering controls

Ventilation required, especially in confined areas, to maintain airborne concentrations and exposure as low as possible and within the legislated exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Personal Protective Equipment

Respiratory protection:

During spraying and in case of insufficient ventilation, an approved respirator (full face mask) with a particulate filter and an organic vapour cartridge or supplied air respirator is recommended. Institute a respiratory protection program that includes the selection, fit testing, training, maintenance, and inspection of the respiratory equipment. Consult with respirator manufacturer to determine respirator selection, use and limitations. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Skin and hand protection:

Select skin and hand protection based on the task being performed and the risks involved with the task.

Impervious chemical resistant gloves recommended for hand protection (e.g., butyl rubber, nitrile rubber, etc.). The gloves should be replaced immediately in case of damage or signs of wear. Prevent skin contact and contamination of personal clothing by wearing impervious work coveralls, shoes and socks as required.

Eye/face protection:

Safety eyewear compliant with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, or vapour. Safety goggles is recommended to prevent contact with eyes from liquid and spray.

General safety and hygiene measures:

The measures appropriate for a particular worksite depend on how this product is used and on the extent of exposure. Ensure that control systems are properly designed and maintained.
Handle the product in accordance with good industrial hygiene and safety practice. An eye wash fountain and safety showers should be available and easily accessible.
Keep the product away from food, drink, and animal feeding stuffs.
Wash the hands and/or face before breaks, eating, smoking, or using the lavatory and at the end of the shift/working period.

Environmental exposure controls

In accordance with the local legislation for the protection of the environment, it is recommended to avoid environmental spillage or releases of both the product and its container.

9. Physical and Chemical Properties

Physical or Chemical Property	Value	Test Method or Remarks
Appearance	Appearance/physical state	Liquid
	Odour characteristics	Non characteristic
	Colour	White
Volatility	Boiling point (°C)	No information
	Vapour pressure (mPa) at 20°C	No information
	Evaporation Rate at 20 °C	No information
Product Descriptors	Solubility in water (mg/L at 20 °C)	Dispersible
	Decomposition temperature (°C)	No information
	Melting point (°C)	No information
	pH	5.5 - 9
	Relative Density	1.05 - 1.07
	Bulk Density/relative density (g/L)	No information
	Specific Gravity	No information
	Log P octanol / water at 20°C	Not determined
Kinematic viscosity (mm ² /s 40 °C)	Not determined	
Flammability	Flammable (Y/N)	Not flammable

Flash point (°C)	>96
Flammable limits-LEL	No information
Flammability limits -UEL	No information
Auto-ignition Temperature (°C)	No information

Other Hazard Information

None known.

10. Stability and Reactivity

Reactivity	The product is not reactive under normal ambient and anticipated storage and handling conditions of temperature and pressure. Could decompose at elevated temperatures.
Chemical Stability	Hazardous polymerization will not occur. Stable under normal ambient conditions of use, storage, and transport.
Possibility of Hazardous Reactions	None known under conditions of normal use.
Hazardous Decomposition Products	Does not decompose when used for intended uses. Can decompose under fire or during burning and at high temperatures releasing toxic oxides of nitrogen, carbon and sulphur.

Conditions to Avoid

Shock and Friction	Contact with Air	Heat and Ignition Sources	Sunlight	Humidity or Moisture Conditions
Not applicable	Not applicable	Avoid exposing to excessive heat (>40°C)	Do not store in direct sunlight	Avoid moisture conditions during storage

Incompatible Materials

Incompatible with:

Strong Acids	Water	Combustive Materials	Strong Alkalis	Other Incompatible Substances
Yes	Not applicable	Not applicable	None known	Oxidizing agents

11. Toxicological Information

Information on likely routes of exposure

The product may be absorbed into the body by inhalation of vapour or spray and/or by ingestion. The product may come into contact with the skin or eyes.

Information on toxicological effects

The product is of low acute toxicity.

Acute toxicity:

Product Information	Fatal	Toxic	Harmful	May be Harmful	Not classified
Ingestion - Oral					√
Dermal/Skin Contact					√
Inhalation					√

Assessment of acute toxicity:

Experimental test data are available for the product.

Product/ingredient Name	Dose Acute -	Species	Test Result
TERBUTREX 500 SC	>2 000 mg/kg	Rat	ATE _(MIX) Oral
TERBUTREX 500 SC – (similar product)	> 4000	Rat	LD ₅₀ Dermal (OECD 402 – test data)
TERBUTREX 500 SC – (similar product)	> 4.61	Rat	LC ₅₀ Inhalation (OECD 403 – test data) Maximum attainable concentration.

Ingredient data:

Terbutryn	2450-2500 mg/kg	Rat	LD ₅₀ Oral
Monoethylene glycol	1 330 mg/kg	Human	LD ₅₀ Oral
Terbutryn	>2000 mg/kg	Rabbit	LD ₅₀ Dermal
Terbutryn	>8 mg/l	Rat	LC ₅₀ (4h) Inhalation

Skin/Dermal – Corrosion/Irritation:

Assessment of corrosion/damage effects (skin/eyes):
Based on available data, the classification criteria are not met.

Eye – Corrosion/Irritation:

Assessment of irritation effects (skin/eyes):

Based on available data, the classification criteria are not met.

Respiratory/Skin Sensitization:

Assessment of sensitization:

Based on available data, the classification criteria are not met.

Germ cell mutagenicity:

Assessment of mutagenicity:

Based on available data, the classification criteria are not met.

Carcinogenicity:

Assessment of carcinogenicity:

Based on available data, the classification criteria are not met.

Note:

Cancer Classification - Group C Possible Human Carcinogen (USEPA Office of Pesticide Programs, Health Effects Division, Science Information Management Branch: "Chemicals Evaluated for Carcinogenic Potential" - April 2006.

Reproductive and developmental toxicity:

Assessment of reproduction toxicity:

Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure):

Assessment of STOT (single):

Based on available data, the classification criteria are not met.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure):

Assessment of repeated dose toxicity:

Based on available data, the classification criteria are not met.

Aspiration hazard:

Assessment of repeated dose toxicity:

Based on available data, the classification criteria are not met.

Skin/Respiratory Sensitization:

Assessment of skin sensitization:

Based on available data, the classification criteria are not met.

Symptoms related to the physical, chemical, and toxicological characteristics

See Section 4.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

None known for the product.

12. Ecological Information

Ecotoxicity

No eco-toxicological data are available for the product. This ecological assessment is based on data available for the active ingredient. In the aquatic system the active ingredient is very toxic to algae, toxic to fish and medium toxic to daphnia in the acute toxicity studies.

The product is very toxic to aquatic life with long lasting effects.

Ingredient	Species and Genus	Exposure (hours/days)	Result in fresh water
Terbutryn	Invertebrates (<i>Daphnia magna</i>)	48h	Acute EC ₅₀ : > 2.66 mg/l (Pesticide Properties Database)
	Fish (<i>Oncorhynchus mykiss</i>)	96h	Acute LC ₅₀ : > 1.1 mg/l (Pesticide Properties Database)
	Algae (<i>Pseudokirchneriella subcapitata</i>)	72h	Acute EC ₅₀ : 0.0024 mg/l (Pesticide Properties Database)

Toxicity to Other Species

No information available for the product.

Terbutryn: Terbutryn does not influence micro-organisms in soil and has low toxicity to birds (the LC₅₀ - 8-day dietary is greater than 20 000 mg/kg for bobwhite quail and pheasant and greater than 4 640 mg/kg for mallard ducks).

Other Environmental and Adverse Effects:

Environmental effect	Environmental Effect Applicable to Ingredient	Description
Persistence and degradability:	Terbutryn	Hydrolysis is very slow at pH 5, 7 and 9. Laboratory studies indicate that terbutryn is photolytically stable in water and soil under natural sunlight. Terbutryn is slowly transformed in soil with half-lives in the range of 15 days to over 100 days in aerobic laboratory studies, and >>3 months in anaerobic studies.
Bioaccumulative potential:	Terbutryn	An estimated BCF of 72 from its log K _{ow} , 3.74 and a regression-derived equation, including a reported BCF of 25 in catfish, suggest the potential for bioconcentration in aquatic organisms is low to moderate.
Mobility in soil:	Terbutryn	If released to soil, terbutryn is expected to have moderate mobility to no mobility based upon K _{oc} values of 366 to 41 757. If released into water, terbutryn is expected to adsorb to suspended solids and sediment.

Other adverse effects:

Residues of terbutryn can enter the environment (soil and water) from runoffs from irrigated fields.

13. Disposal Considerations

Waste handling and disposal

Avoid and minimize the generation of waste. Dispose product related waste in accordance with all local regulations and prevent the contamination of water, food, or feed by storage or disposal of the waste. Do not use empty containers for any other purpose. The product or empty containers must not be disposed of as part of general waste.





Special help is available for the disposal of Agricultural Chemicals. The product label will supply general advice regarding disposal of small quantities, and how to cleanse containers.

General container handling

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Empty containers and offer for recycling if an available option. Recondition if appropriate or puncture and dispose of in a hazardous waste landfill, or by other procedures approved by the local authorities. Contaminated packaging: Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the product.

14. Transport Information

	Land (Road) Transport (ADR/RID)	Land (Rail) Transport (RID)	See Transport (IMDG)	Air Transport (ICAO-TI/IATA-DGR)
UN Number	3082	3082	3082	3082
UN Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Terbutryn)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Terbutryn)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Terbutryn)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Terbutryn)
Transport Hazard Class	9	9	9	9

Transport Hazard Class Pictogram				
Transport Subsidiary Class	None	None	None	None
Packaging Group	III	III	III	III
Environmental Hazard	Yes	Yes	Yes Marine pollutant	Yes
Special Precautions for User:				
Special Provisions	274, 335, 601, 375	274, 335, 375, 601	274, 335, 969	A97, A158, A197
Classification Code	M6	M6	-	-
EmS-No	-	-	F-A, S-F	-
ERG Code	-	-	-	9L

15. Regulatory Information

Safety, health, and environmental regulations specific for the product in question

Symbol

N - Dangerous for the Environment.

R- Phrase Number

R50/53

R Phrase

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

No known specific country national and/or local regulations applicable to the product (including its ingredients).

A summary of country specific general laws/regulations are supplied below.

South Africa:

Registration Requirements: Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947).

Pesticide Handling, Storage and Disposal Safety: SANS10206: 2020.

Safety Data Sheet and Occupational Exposure Limit Requirements: Regulations for Hazardous Chemical Agents – 2021 – SA Occupational Health and Safety Act. SANS11014:2010.

Control of and handling of poisonous/hazardous and non-poisonous/non-hazardous substances/chemicals in workplaces: Hazardous Substances Act, 1973 (Act No.15 of 1973). Occupational Health and Safety Act No. 85 of 1993.

16. Other Information

Key to Abbreviations

AND	European Provisions concerning the International Carriage of Dangerous Goods by inland Waterways
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS Number	Chemical Abstracts Service Number
COD	Chemical Oxygen Demand
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG	International Maritime Dangerous Goods
Log _{Pow}	Logarithm of the octanol/water partition coefficient
LD ₅₀	Lethal Dose 50
LC ₅₀	Lethal Concentration 50
RID	The Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
TWA	Time Weighted Average
UN	United Nations

Document Control

Date of preparation of the SDS	28 February 2022
Revision date	22 March 2023
Revision Note	Changes made to the last version are labelled with the sign ***. NOTE: This revision incorporates the GHS requirements for TERBUTREX 500 SC and therefore the total content of the SDS has been revised.

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Classification of the Mixture - Classification Procedure

H Statement Number	H Statement	Classification Basis: Test Data/Calculation Method
H400	Very toxic to aquatic life.	Classification based on calculation method.
H410	Very toxic to aquatic life with long lasting effects.	Classification based on calculation method.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet