SAFETY DATA SHEET

Date of Issue: February 2014
MSDS No. FMC/TER500/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC TERBUTRYN 500 HERBICIDE

Other Names: Terbutryn. Group C Herbicide.
Use: Agricultural herbicide for the control of broadleaf weeds in crops.
Company: FMC Australasia Pty Ltd.
Address: 5 Palmer Place, Murarrie, Qld 4172
Telephone Number: 07 3908 9208 **Fax Number:** 07 3908 9221
Emergency Telephone Number: 1800 033 111 (All hours - Australia wide).

SECTION 2 HAZARDS IDENTIFICATION

Not classified as hazardous according to criteria of Safe Work Australia.
Not classified as a Dangerous Good according to the ADG Code.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION*
Terbutryn	886-50-0	500 g/L
Other ingredients (including water) determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES

FIRST AID

Swallowed: If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26. If swallowed, do not induce vomiting. Give a glass of water. If any discomfort persists seek medical advice.

Eye: If in eyes, hold eyes open and flush with water until chemical is removed. If irritation occurs and persists, obtain medical attention.

Skin: If on skin immediately wash with soap and water. Remove contaminated clothing. If irritation occurs and persists see a doctor. Launder contaminated clothing before re-use.

Inhaled: Remove patient to fresh air. If breathing discomfort occurs, obtain medical attention.

Advice to Doctors: Treat symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Not flammable.

Extinguishing media: Choose extinguishing media to suit the burning material. If containers rupture contain all runoff.

Hazards from combustion products: Product is unlikely to decompose until heated to dryness. On further heating will emit toxic fumes.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe or contact smoke, gases or vapours generated.

SECTION 6 ACCIDENTIAL RELEASE MEASURES

Emergency procedures: Isolate and post spill area. Keep out unprotected persons and animals. Wear cotton overalls buttoned at the neck and wrist and elbow-length PVC gloves. Large spills should be dyked or covered to prevent dispersal. Vacuum, shovel or pump spilled material into an approved container and dispose of as listed in section 13 or according to the Australian Standard 2507 - Storage and Handling of Pesticides.

Material and methods for containment and cleanup procedures: To clean spill area, tools and equipment, wash with a solution of soap, water and acetic acid/vinegar. Follow this with a neutralisation step of washing the area with a bleach or caustic soda ash solution. Finally, wash with a strong soap and water solution. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected.

Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: Ensure containers are kept closed until using product. Harmful if swallowed. Avoid contact with the skin. Repeated exposure may cause allergic disorders. When using the product wear elbow-length PVC gloves. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves.

Conditions for Safe Storage: DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in closed original containers, in a cool, well ventilated area away from children, animals, food and feedstuffs. Do not store for prolonged periods in direct sunlight.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:
No exposure standard for terbutyn has been established by Safe Work Australia.

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Use in well ventilated area only. Ventilate all transport vehicles prior to unloading. Keep containers closed when not in use.

Personal Protective equipment (PPE):
General: When using the product wear elbow-length PVC gloves. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves.

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Opaque liquid.
Odour:	Mild odour.
Boiling point:	No data available.
Freezing point:	No data available.
Specific Gravity:	No data available.
pH:	No data available.
Solubility in Water:	Product suspends in water.
Flammability:	Not flammable.
Flashpoint (°C):	Not applicable.
Flammability Limits (%):	Not established.
Poisons Schedule:	Product is a schedule 5 (S5) poison.
Formulation type:	Suspension concentrate.

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight.

Incompatible materials: Avoid strong acids, strong bases, strong oxidising agents.

Hazardous decomposition products: Product is unlikely to decompose until heated to dryness. On further heating will emit toxic fumes.

Hazardous reactions: Will not polymerise.

SECTION 11 TOXICOLOGICAL INFORMATION

Potential Health Effects:
No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Acute

Swallowed: Low acute oral toxicity; the acute oral LD_{50} (rat) > 2000 mg/kg (Terbutryn).

Eye: The concentrate may cause eye Irritation.

Skin: Not a skin irritant The dermal LD_{50} (rabbit) > 2000 mg/kg (Terbutryn). Not a skin sensitiser.

Inhaled: Acute inhalation LC_{50} > 2.2 mg/L/4 hour (Terbutryn). Avoid inhalation of spray mists as respiratory irritation may occur.

Chronic: No data available on this formulation. In studies with laboratory animals, no mutagenic effects were observed. The weight of evidence indicates that terbutryn is not carcinogenic.
Reproductive effects: A three generation reproduction study of rats showed that doses of 150 mg/kg/day of terbutryn caused decreased fertility indices in both male and female rats.
Organ toxicity: Long-term feeding at high doses of terbutryn can cause growth retardation, kidney damage, liver damage and a decreased number of white blood cells.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Terbutryn is only slightly toxic to birds. The LC_{50} (8-day dietary) >20,000 mg/kg for bobwhite quail and pheasant and > 4640 mg/kg for mallard ducks. Terbutryn is not toxic to bees LD_{50} > 100 µg/bee. Terbutryn is moderately toxic to fish LC_{50} (96 hr) = 1.14 mg/L for Rainbow trout. LC_{50} (48 hr) = 2.66 mg/L for *daphnia magna*. The concentration which is lethal to fish in water, the LC_{50} (96 hours), is 3 mg/kg for rainbow trout and 4 mg/kg for bluegill sunfish, carp, and perch. Toxic to algae EC_{50} (72hr) = 2.4 µg/L for *Pseudokirchneriella subcapitata*.

Environmental Properties: Terbutryn is readily adsorbed in soils with high organic or clay content. The half-life in soil is 14-28 days. Depending on the application rate, the residual activity of terbutryn in soil is 3 to10 weeks. It is slightly mobile to immobile in soils. Data indicate that it will not leach in agricultural soils. In water, terbutryn is not volatile. It will adsorb to sediment and suspended particulate matter. Half-lives of 180-240 days have been reported for degradation of terbutryn in pond and river sediment. It may be subject to very slow hydrolysis and biodegradation in water.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: In the case of spillage, contain and absorb spilled material with absorbent material such as sand, clay or cat litter and dispose of waste as indicated below or according to the Australian Standard 2507 - Storage and Handling of Pesticides. Wear prescribed protective clothing and equipment. Keep out animals and unprotected persons. Vacuum, shovel or pump waste into an approved drum. Dispose of drummed wastes, including decontamination solution, in accordance with the requirements of Local or State Waste Management Authorities.

SECTION 13 DISPOSAL CONSIDERATIONS (Continued)

Dangerous to Fish: Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

Disposal of empty, non-returnable containers: Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the container below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Empty containers and product should not be burnt.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: FMC Terbutryn 500 is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail in containers less than 3000 litres. Bulk shipments should use UN 3082, as per below.

Marine and Air Transport: FMC Terbutryn 500 is a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:-
UN 3082, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains 50% Terbutryn).

SECTION 15 REGULATORY INFORMATION

Not classified as a hazardous substance according to criteria of Safe Work Australia.
Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 5 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 69338.
Product is not classified as a Dangerous Good according to the ADG Code (7th Ed) in containers less than 3000 litres.
Product is classified as a Dangerous Good according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA).
Requirements concerning special training:
Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16 OTHER INFORMATION

Issue Date: 14 February 2014. Valid for 5 years. (First issue).

Key to abbreviations and acronyms used in this SDS:

ADG Code:	Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
Carcinogen:	An agent which is responsible for the formation of a cancer.
Clonic:	An abnormality in neuromuscular activity characterized by rapidly alternating muscular contraction and relaxation.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
Haematopoietic:	Pertaining to the formation of blood or blood cells.
Lavage:	The irrigation or washing out of an organ, as of the stomach or bowel.
Mutagen:	An agent capable of producing a mutation.
Oedema:	Accumulation of fluid in tissues.
NOHSC:	National Occupational Health and Safety Commission.
Teratogen:	An agent capable of causing abnormalities in a developing foetus.

SECTION 16 OTHER INFORMATION (Continued)

Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. "Search Hazardous Substances". Safe Work Australia website. (2014).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2009.

This SDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End SDS