MATERIAL SAFETY DATA SHEET

Date of Issue: March 2013
MSDS No. FMC/TRIA500/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC Triallate 500 Herbicide

Other Names: Triallate, Group J Herbicide.
Use: Agricultural herbicide for the pre-emergence control of wild oats.
Company: FMC Crop Protection Pty Ltd.
Address: 5 Palmer Place, Murarrie, Qld 4172
Telephone Number: 07 3908 9222 **Fax Number:** 07 3908 9221
Emergency Telephone Number: 1800 033 111 (All hours - Australia wide).

SECTION 2 HAZARDS IDENTIFICATION

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

Risk phrases:	R22	Harmful if swallowed.
	R36/38	Irritating to eyes and skin.
	R43	May cause sensitisation by skin contact.
	R48/22	Harmful: Danger of serious damage to health by prolonged exposure if swallowed.
	R65	Harmful: may cause lung damage if swallowed.
	R66	Repeated exposure may cause skin dryness and cracking.
	R67	Vapours may cause drowsiness and dizziness.
Safety Phrases:	S2	Keep out of reach of children.
	S13	Keep away from food, drink and animal feeding stuffs.
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S46	If swallowed, seek medical advice immediately and show this container or label.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	*CAS NUMBER*	*PROPORTION*
Triallate	2303-17-5	500 g/L
Liquid Hydrocarbon	64742-94-5	471 g/L
Other ingredients determined not to be hazardous		balance

SECTION 4 FIRST AID MEASURES

Ingestion: If swallowed do NOT induce vomiting; seek medical advice immediately and show this container or label or contact the Poisons Information Centre phone Australia13 11 26. Rinse mouth and then drink plenty of water. Do not give anything by mouth to a semi-conscious or unconscious person. Make every effort to prevent vomit from entering the lungs by careful placement of the patient.

Skin: Wash affected areas thoroughly with soap and water. Remove contaminated clothing and launder before re-use. If irritation occurs and persists, seek medical advice.

SECTION 4 FIRST AID MEASURES (Continued)

Eye: If in eyes, hold eyelids open and wash with copious amounts of water until chemical is removed. Seek medical advice.

Inhalation: Remove affected person to fresh air until recovered.

Advice to Doctor: Treat symptomatically. This product also contains aromatic solvents which may produce a chemical pneumonitis; therefore vomiting is not recommended, and lavage requires intubation. Activated charcoal and cathartics will assist gastrointestinal tract evacuation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Combustible liquid (C1). Eruption of containers is likely if confined at high temperatures. Cool intact containers with water to reduce drum pressure.

Extinguishing media: Foam, CO_2 or dry chemical. Soft stream water fog or fine water spray if no alternatives. Contain all runoff.

Hazards from combustion products: Product will decompose when burnt and will emit toxic fumes. Eruption of containers is likely if confined at high temperatures. Intact containers exposed to excessive heat should be cooled with water to reduce drum pressure. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk to of exposure to vapour or smoke.

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 ACCIDENTAL RELEASE MEASURES

Emergency procedures: Isolate and post spill area. Wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length PVC gloves and face shield or goggles. In the case of spillage, stop leak if safe to do so, and contain spill. Absorb spilled material with absorbent material such as sand, clay or cat litter. Vacuum, shovel or pump spilled material into an approved container and dispose of waste as indicated in section 13. Keep out unprotected persons and animals. Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

Material and methods for containment and cleanup procedures: To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

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. May irritate the eyes and skin. Avoid contact with eyes, skin and clothing. Do not inhale spray mist. When preparing spray, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length PVC gloves and face shield or goggles. If product on skin, immediately wash area with soap and water. 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 and face shield or goggles and contaminated clothing

Conditions for Safe Storage: DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in the closed original container, in a cool well ventilated area, out of direct sunlight. Store in a room or place away from children, animals, food, feed stuffs, seed and fertilizers. Not classified as a Dangerous Good. This product is classified as a C1 (Combustible Liquid) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Do not store or use near naked flame or heat sources. Do not cut or weld container.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:
Exposure guidelines have not been established for this product by Safe Work Australia, however the manufacturer recommends the following guideline.

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m³)
Liquid hydrocarbon	100 mg/m³ (17 ppm)	-

TWA = Time-weight Average STEL = Short term Exposure Limit

Biological Limit Values:
No biological limit allocated.

Engineering controls:
Use in ventilated areas only. Use local exhaust at all process locations. Ventilate all transport vehicles prior to unloading. Keep containers closed when not in use.

Personal Protective equipment (PPE):
General: When preparing spray, wear cotton overalls buttoned to the neck and wrist and a washable hat and elbow length PVC gloves and face shield or goggles. If product on skin, immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water.

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. After each day's use, wash gloves and face shield or goggles and contaminated clothing. Shower at the end of the workday.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Amber to brown coloured liquid.
Odour: Typical solvent odour.
Boiling Point: No data is available.
Solubility in Water: Forms an emulsion in water.
Specific Gravity: 1.0.
pH Value: 8 – 8.5 (1% solution)
Vapour Pressure: No data is available.
Volatile Component: No data is available.
Flash Point: Approximately 70ºC.
Flammability: Combustible liquid C1.
Formulation type: Emulsifiable Concentrate (EC).

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. Do not store or use near naked flame or heat sources.

Incompatible materials: Keep away from strong oxidising agents.

Hazardous decomposition products: If involved in fire it will emit oxides sulphur and other toxic and noxious gases.

Hazardous reactions: No special considerations. Will not polymerise.

SECTION 11 TOXICOLOGICAL INFORMATION

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.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Potential Health Effects:

ACUTE EFFECTS

Ingestion: Amounts swallowed incidental to normal handling procedures and use are not expected to cause injury. If aspirated into the lung, e.g. from vomiting, the presence of solvent may result in chemical pneumonitis or other lung damage. Tri-allate LD_{50} = 800 mg/kg (rat).

Skin: Will irritate the skin. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis. May cause sensitisation by prolonged skin contact. Acute dermal LD_{50} > 2000 mg/kg.

Eye: The concentrate will cause irritation of the eyes and possible damage in severe cases.

Inhalation: High vapour concentrations of the solvent while handling the concentrate are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, and may have other central nervous system effects. Acute inhalation LC_{50} > 5.3 mg/L/ (Tri-allate).

CHRONIC EFFECTS: Although triallate is a carbamate it does not inhibit cholinesterase activity. Liver and kidney damage has been noted in laboratory animals that have been fed excessive doses of triallate. Evidence from animal studies indicate that repeated or prolonged exposure to triallate can result in neurological effects.

Reproductive Toxicity: No such effects have been observed in the absence of maternal toxicity.

Carcinogenicity: Data indicates no carcinogenic effects.

Mutagenic effects: The data suggests triallate is either non-mutagenic or very weakly mutagenic.

Organ toxicity: Changes have been observed in the cellular processes of the brain, liver and spleen of pigs given triallate. Studies in other species indicate the thymus, kidneys and reproductive organs are potential target organs.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Triallate has low toxicity to birds. The LD_{50} is > 2251 mg/kg for bobwhite quail. Tri-allate is toxic to fish and other marine organisms. Over 7 weeks marked bioaccumulation occurred in bluegill sunfish, but over a two week depuration period, tri-allate was rapidly and nearly completely eliminated. LC_{50} for rainbow trout = 1.2 mg/L (96 hr), EC_{50} = 0.43 mg/L (48 hr) for Daphnia magna and Algae EC_{50} =0.12 mg/L (96 hr). Low toxicity to honeybees.

Environmental Properties: Under prolonged and extremely dry conditions, this product may persist for several months. The half-life in soil is 82 days. Triallate absorbs well to soil and has low solubility in water which indicates low movement in soils. However, in situations of high soil moisture conditions and/or low organic matter levels, Triallate may become desorbed and more mobile.

DO NOT contaminate streams, rivers or waterways with the chemical or used container.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: Isolate and post spill area. Wear prescribed protective clothing and equipment. Keep material out of streams and sewers. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities. In rural areas contact ChemClear http://www.chemclear.com.au for help with collection of unwanted rural chemicals.

Disposal of empty containers: Triple or preferably pressure rinse containers before disposal. Add rinsings to tank mix. Do not dispose of undiluted chemicals on-site. If not recycling, break, crush, or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface 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. DO NOT burn empty containers or product.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: This product is exempt from classification as a Dangerous Good in packs less than 3,000 kg or litres under the Australian Code for the Transport of Dangerous Goods by Road and Rail. For bulk shipments this product is a class 9, UN 3082.

Marine and Air Transport: FMC Triallate 500 Herbicide is classified as 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 Triallate). Hazchem code ●3Z. Hazard Identification Number (HIN) 90.

SECTION 15 REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of the Safe Work Australia. (Xn - harmful, Xi - irritant).
Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 6 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 67818.
Product is not classified as a Dangerous Good according to the ADG Code (7th Ed).
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: 15 March 2013. Valid for 5 years. (First issue).

Key to abbreviations and acronyms used in this MSDS:

ADG Code:	Australian Dangerous Goods Code (for the transport of Dangerous Goods by Road and Rail).
ASCC:	Australian Safety & Compensation Council (formally known as the National Occupational Health & Safety Commission (NOHSC)).
Carcinogen:	An agent which is responsible for the formation of a cancer.
Genotoxic:	Capable of causing damage to genetic material, such as DNA.
Pneumonitis:	A general term that refers to inflammation of lung tissue.
PPE:	Personal protective equipment.
Teratogen:	An agent capable of causing abnormalities in a developing foetus.
TWA:	The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.
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 Council website. (2013).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Standard for the Uniform Scheduling of Medicines and Poisons.

This MSDS 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 MSDS 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 of MSDS