

MATERIAL SAFETY DATA SHEET

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Date of Issue: September 2012
MSDS No. FMC/PARA250/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC Paraquat 250 Herbicide

Other Names: Paraquat, a Group L Herbicide.
Use: Agricultural herbicide for control of a wide range of weeds.
Company: FMC Australasia Pty Ltd.
Address: Unit 26, 8 Metroplex Avenue, 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.
Classified as a Dangerous Good according to the ADG Code.**

Risk phrases: Classified as hazardous.
R43 May cause sensitization by skin contact.
R24/25 Toxic in contact with skin and if swallowed.
R26 Very toxic by inhalation.
R37/38 Irritating to respiratory system and skin.
R41 Risk of serious damage to eyes.
R48/25 Toxic: danger of serious damage to health by prolonged exposure if swallowed.

Safety Phrases: S1/2 Keep locked up and out of reach of children.
S23 Do not breathe vapour or spray.
S28 After contact with skin, wash immediately with plenty of water.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S38 If insufficient ventilation, wear suitable respiratory equipment.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	CAS NUMBER	PROPORTION
Paraquat (present as Paraquat dichloride)	1910-42-5	250 g/L
Emulsifiers	-	10 - 30%
Other ingredients (including water) determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES

FIRST AID:

Swallowed: RAPID TREATMENT IS ESSENTIAL IN CASE OF PARAQUAT POISONING. SPEED IS ESSENTIAL.

Go to a doctor or hospital IMMEDIATELY. If possible, phone ahead to alert to the situation so treatment is not delayed on arrival. If more than 15 minutes from a hospital induce vomiting, if this has not already occurred, by tickling back of throat with a clean, blunt instrument (e.g. spoon handle). **DO NOT delay the start of treatment.**

All care must be taken to prevent vomit from being inhaled.

SECTION 4 FIRST AID MEASURES (Continued)

- Swallowed:** Do not give anything by mouth to a semi-conscious or unconscious person.
(Cont) Immediately transfer patient to nearest hospital or medical centre, warning by telephone of the estimated time of arrival so that the start of treatment is not delayed.
- Eye:** If in eyes, hold eyelids open and wash with copious amounts of water for at least 15 minutes. Urgently seek medical assistance. Transport to hospital or medical centre. If splashed with the concentrate, patients should be reviewed after 24 hours. Referral to an ophthalmologist should be considered.
- Skin:** Contact of the concentrate with abraded skin or skin with cuts must be avoided. Wash affected areas thoroughly with soap and water. Remove contaminated clothing and laundry before re-use. Seek medical advice, but only after the exposed skin has been thoroughly washed.
- Inhaled:** Remove patient from exposure, keep warm and at rest. Obtain medical attention urgently.

Advice to Doctor: Rapid treatment for PARAQUAT poisoning is essential. Evacuation of the stomach and stomach washout should be carried out as quickly as possible. A booklet entitled 'Paraquat Poisoning, a practical guide to diagnosis, first aid and hospital treatment' (prepared by Syngenta) or 'The Treatment of Paraquat Poisoning: a guide for doctors' (prepared by Orica Australia) is available at major hospitals or Poison Information Centres.

TREATMENT: Wash out stomach and test urine and gastric aspirate (if clear) for presence of paraquat. Give up to 1 litre of 15% aqueous suspension of Fuller's Earth orally or via gastric tube, together with a suitable purgative (200 mL of an aqueous solution of mannitol). A 7% suspension of bentonite in 10% glycerol in water should be used if Fuller's Earth is unavailable. Repeat administration of absorbent plus purgative until absorbent is seen in the stools. This should normally take between 4 and 6 hours after the start of treatment. Do not use supplemental oxygen.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Not flammable. Choose extinguishing media to suit the burning material. Contain all runoff. Contain all runoff. Hazchem 2XE.

Hazards from combustion products: There is no risk of an explosion from this product under normal circumstances if involved in a fire. Product is unlikely to decompose until heated to dryness. On further heating will emit toxic fumes including oxides of carbon, oxidise of nitrogen and hydrogen chloride. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or smoke, or the product.

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: In case of spillage it is important to take all steps necessary to:

- Avoid eye and skin contact.
- Avoid contamination of waterways and drains.

Isolate and post spill area. Keep all bystanders away. Wear full length clothing and PVC gloves to prevent skin and eye contamination. Re-position any leaking containers so as to minimise further leakage. 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 below. Keep out unprotected persons and animals.

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.

SECTION 6 ACCIDENTAL RELEASE MEASURES (Continued)

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: For use by licensed pest control operators or primary producer's only. Do not work in spray mist. Ensure containers are kept closed until using product. When opening the container and preparing product for use, wear elbow-length PVC gloves and face shield or goggles. If product on skin, immediately wash area with soap and water. If clothing becomes contaminated with product remove clothing immediately. If product in eyes, wash it out immediately with water. Avoid contact with spray mist. DO NOT inhale spray mist. 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.

Do not continue to use if skin irritation or nose bleed occurs. This may be caused by exposure to stray mist as the result of incorrect use of equipment or adverse climatic conditions. Stop and review handling and spraying techniques before further spraying. If symptoms persist seek medical advice.

Conditions for Safe Storage: KEEP OUT OF REACH OF CHILDREN. This product is a Schedule 7 Poison (S7) and must be stored, transported and sold in accordance with the relevant Health Department regulations. Store in the closed, original container in a dry, cool, well-ventilated, locked room or a place away from children, animals, food, feedstuffs, seed and fertilisers. DO NOT store for prolonged periods in direct sunlight. This product is a Dangerous Good - Class 6.1.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**National Exposure Standards:**

No exposure guidelines have been established for this product by Safe Work Australia, but an exposure guideline has been established for the active ingredient (Paraquat dichloride) and is presented below:

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m ³)
Paraquat dichloride (respirable sizes)	0.1 mg/m ³	Not set

TWA = Time-Weight Average

Biological Limit Values:

No biological limit allocated.

Engineering controls:

Use in ventilated areas adequate to keep exposure below the TWA. Keep containers closed when not in use. Some people who are extremely sensitive to the product may develop nose bleeds when handling the concentrate. If possible, these people should not handle the material; if they must, provide effective local ventilation.

Personal Protective equipment (PPE):

When opening the container and preparing product for use wear elbow length PVC gloves and face shield or goggles. When there is a risk of exposure to spray mist wear waterproof footwear and waterproof protective clothing, impervious gauntlet length gloves (rubber or PVC), goggles and a face mask and respirator covering nose and mouth and capable of filtering spray droplets. A high efficiency type particulate respirator is recommended, but in any event use a respirator which complies with the requirements of AS1716 (Standard Association of Australia). Further advice on safety equipment should be obtained from a safety equipment manufacturer.

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, goggles, contaminated clothing and respirator.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear blue coloured liquid.
Odour:	Obnoxious odour. (Stenching agent included)
Boiling Point:	No specific data ~100°C
Solubility in Water:	Soluble in water.
Specific Gravity:	1.1
pH Value:	5.0 – 6.5
Flammability:	Non combustible material.
Poison Schedule:	Schedule 7 (S7) poison.

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture. Paraquat is inactivated by adsorption onto clay.

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

Incompatible materials: Paraquat is highly corrosive to most metals eg. Aluminium, zinc, iron..

Hazardous decomposition products: Should not decompose unless heated further after reaching complete dryness. May then produce carbon monoxide, nitrogen oxides, hydrogen cyanide and/or hydrogen chloride.

Hazardous reactions: Keep away from strong oxidizing agents..

SECTION 11 TOXICOLOGICAL INFORMATION

Swallowed: TREATMENT OF PARAQUAT POISONING MUST COMMENCE AS RAPIDLY AS POSSIBLE. CAN KILL IF INGESTED. Acute LD₅₀ (paraquat) 150 mg/kg (rat), ~ 30 mg/kg man. About 10 mL of product may be lethal. Kidney and liver damage may occur after 2-3 days. Lung fibrosis after 1-3 weeks may cause death. Higher doses may cause multi-organ failure and death within 2-3 days. Rapid treatment is essential. The immediate effects of poisoning depend on the dose of paraquat absorbed into the blood. Mild poisoning occurs at < 20 mg paraquat ion/kg body weight and the effects are vomiting and diarrhoea. Moderate to severe poisoning occurs at 20 – 30 mg paraquat ion/kg body weight and the effects are vomiting, abdominal discomfort, soreness and inflammation of the mouth, throat and oesophagus, difficulty in swallowing and, later, diarrhoea. Kidney and liver damage may appear 1 – 3 days after exposure. Can cause death by a delayed proliferating fibrosis of the lung within 1 – 3 weeks. Lethal poisoning occurs at > 30 mg paraquat ion/kg body weight and the effects are nausea and vomiting, and can cause death by multi-organ failure and circulatory collapse within 48 hours.

Inhaled: When applying the product as a spray, avoid breathing in spray mist. 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.

Skin: Contact with concentrate on skin will result in moderate irritation. Can cause inflammation and in severe cases blistering of the skin. Contamination of the nails may cause white spots or in severe cases cracking and loss of the nail. Normal growth follows without delay. Intact skin is a very effective barrier to paraquat. Damaged skin removes the barrier and paraquat may be absorbed with effects as outlined above under ingestion.

Eye: Eye irritation may be delayed. May lead to ulceration of corneal and conjunctival epithelium giving rise to secondary infection. Although healing may be slow, the injury is superficial and with proper medical care will be complete, even in severe cases.

Chronic Effects: Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Acute Toxicity-

Oral: LD₅₀ (rat) = 129 - 157 mg/kg for paraquat dichloride.
LD₅₀ (guinea pig) 30 - 58 mg/kg.

Dermal: LD₅₀ (rat) = 911 mg/kg for paraquat dichloride.
LD₅₀ (rabbit) = 240 mg/kg for paraquat ion.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Inhalation: LC₅₀ (rat) = 0.5 - 1.5 µg/L/4 hr for paraquat dichloride.

Eye Irritation: The product is an eye irritant.

Skin Irritation: The product is a skin irritant.

Skin Sensitisation: The product is a skin sensitiser.

Other Information: Studies in animals have shown that repeated doses of paraquat do not produce carcinogenic nor teratogenic effects or adverse reproductive effects. The dietary no effect level in the rat was 25 ppm of paraquat over 2 years. The AOI (Acceptable Daily Intake) for humans (paraquat cation) is 0.004 mg/kg/day.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: No data is available on this product. The active ingredient, paraquat is toxic to aquatic organisms. 96hr LC₅₀ (rainbow trout) is 55 mg/L (static). The 96 hr LC₅₀ (brown trout) is 2.5 - 13 mg/L. LC₅₀ 72 hours for green algae is 0.34 mg/L. Paraquat is highly toxic to birds. The oral LD₅₀ for hens is 262 - 380 mg/kg; Mallard duck LD₅₀ = 199 mg/kg; Bobwhite quail LD₅₀ = 175 mg/kg. Not toxic to bees. LD₅₀ = 36 µg/bee.

Environmental Properties: Paraquat is rapidly absorbed and deactivated by soil. There is no mobility in soil or ground water. There is evidence of photodegradation in water and plants.

Keep domestic pets and poultry away from treated areas. This formulation should not be applied on or near water which is used for livestock watering. Do not contaminate dams, waterways or sewers with this product or the containers which have held this product.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: Isolate and post spill area. Persons involved in cleanup require complete skin protection - see section 8. In case of spillage, contain and absorb spilled material with absorbent material such as clay, sand or cat litter. Large spills should be dyked or covered to prevent dispersal. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. 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. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

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 classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail. Classified as a Dangerous Good by the International Maritime Dangerous Goods (IMDG) Code and the International Air transport Association (IATA) with the following classification:

UN 3016. BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC – (Contains Paraquat).

Packaging Group III.

Class 6.1. Hazchem 2XE. Hazard Identification Number (HIN) 86.

This product is a Schedule 7 Poison (S7) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 15 REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of the Safe Work Australia. (T⁺ - Very Toxic, T - Toxic, Xi - irritant).

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 7 poison.

This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 67563.

Product is classified as a Dangerous Good according to the ADG Code (7th Ed), IMDG and 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: 20 September 2012. 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.

Lacrimation: The production, secretion, and shedding of tears.

Lavage: A general term referring to cleaning or rinsing.

NOHSC: National Occupational Health and Safety Commission.

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. (2011).
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. No. 3. Medicines and Poisons Scheduling Secretariat. June 2012.

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