

MATERIAL SAFETY DATA SHEET

Page 1 of Total 5
Date of Issue: November 2012
MSDS No. FMC/CLET240/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC Clethodim 240 Herbicide

Other Names: Clethodim, a Group A Herbicide. A cyclohexanedioneoxime derivative.
Use: Agricultural herbicide for the control of certain grass weeds.
Company: FMC Crop Protection 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.
Not classified as a Dangerous Good according to the ADG Code.
Combustible Liquid (C1).**

Risk phrases: R36/38 Irritating to eyes and skin.
R65 Harmful: may cause lung damage if swallowed.

Safety Phrases: S2 Keep out of reach of children.
S13 Keep away from food, drink, and animal feeding stuffs.
S23 Do not breathe vapour or spray.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 Wear suitable 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
Clethodim	99129-21-2	240 g/L
Liquid Hydrocarbons	64742-94-5	606 g/L
Other ingredients (considered non-hazardous)		Balance

SECTION 4 FIRST AID MEASURES

Ingestion: Rinse mouth and then drink plenty of water. Do not give anything by mouth to a semi-conscious or unconscious person. If swallowed, do NOT induce vomiting; seek medical advice immediately and show this container or label or contact the Poisons Information Centre phone Australia 13 11 26. 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.

Eye: If in eyes, hold eyelids open and wash with copious amounts of water until chemical is washed out. Seek medical advice if irritation persists.

Inhalation: Remove affected person to fresh air until recovered. If symptoms develop or persist, seek medical advice.

SECTION 4 | FIRST AID MEASURES (Continued)

Advice to Doctor: Treat symptomatically. If vomiting occurs, solvent present may cause pulmonary pneumonitis. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure. Consideration should be given to gastric lavage with an endotracheal tube in place.

SECTION 5 | FIRE FIGHTING MEASURES

Specific Hazard: Flash point > 62°C. Combustible liquid (C1).

Extinguishing media: Extinguish fire using foam blanket, carbon dioxide or dry agent. If not available, use waterfog or fine water spray but ensure all runoff is contained. 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, washable hat, elbow length PVC gloves and face shield or goggles. 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. 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. This product is a herbicide and spills can damage crops, pastures and desirable vegetation. Prevent from entering drains, waterways or sewers. Use earthen bunds or absorbent bunding to prevent spreading of spillage.

SECTION 7 | HANDLING AND STORAGE

Precautions for Safe Handling: Ensure containers are kept closed until using product. Harmful if swallowed. Will irritate the eyes and skin. When preparing spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist, washable hat, elbow length PVC gloves and face shield or goggles. If product in eyes wash it out immediately with water. After use and before eating, drinking or smoking, wash hands arms and face thoroughly with soap and water. After each days 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. This product is classified as a C1 (Combustible Liquid) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to state regulations for storage and transport requirements. Not classified as a Dangerous Good. This product is a Schedule 5 Poison (S5) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

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

Exposure guidelines have not been established for this product by safe Work Australia.

SECTION 8 | EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)**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 and using the prepared spray wear cotton overalls buttoned to the neck and wrist, washable hat, elbow length PVC gloves and face shield or goggles. Wash hands after use.

Respiratory Protection: Generally not required. Use of a respirator may be required in certain circumstances. If an inhalation risk exists, wear a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (Australian Standards).

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. After use and before eating, drinking or smoking, wash hands arms and face thoroughly with soap and water. Shower at the end of the workday.

SECTION 9 | PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear yellow to brown liquid.
Odour:	Mild aromatic odour.
Solubility in Water:	Forms an emulsion in water.
Specific Gravity:	Approximately 0.95.
Octanol/Water	
Partition Coefficient:	Kow Log P is 4.18 (Clethodim).
Flash Point:	> 62°C.
Flammability:	Combustible liquid C1.
Poison schedule:	This product is a schedule 5 (S5) 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.

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

Incompatible materials: Strong acids, strong bases and strong oxidising agents.

Hazardous decomposition products: On burning this product will produce toxic and noxious fumes.

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.

Ingestion:	If aspirated into the lung, e.g. from vomiting, the presence of solvent may result in chemical pneumonitis or other lung damage. LD ₅₀ = 1360 mg/kg for female rats and 1630 mg/kg for male rats (Clethodim).
Skin:	Will irritate the skin. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis. LD ₅₀ (rat) >5,000 mg/kg for clethodim. Product is not a skin sensitiser.
Eye:	Will irritate the eyes.
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. LC ₅₀ (rat) >3.9 mg/L/4hr for clethodim.
Chronic Effects:	Chronic exposure can cause damage to the liver.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

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

Mutagenicity: The weight of evidence indicates that clethodim does present a mutagenic risk.

Carcinogenicity: Data indicates no carcinogenic effects.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Low toxicity to birds. The dietary LC₅₀ in mallard ducks > 6000 mg/kg. Acute oral LD₅₀ bobwhite quail > 2000 mg/kg. Moderate toxicity to aquatic organisms. The reported 96-hour LC₅₀ values for rainbow trout is 67 mg/L and bluegill sunfish 120 mg/L. The 48-hour LC₅₀ for Daphnia (water flea), an important food source for freshwater fish, is 120 mg/L. The EC₅₀ (5 days) for fresh water algae is 57.8 mg/L. Low toxicity to honeybees contact LC₅₀ > 100 µg/bee. The reported LC₅₀ values for earthworms in soil is 454 mg/kg.

Environmental Properties: Clethodim is of low persistent in most soils with T_{1/2} 3 days. Breakdown is mainly by aerobic processes and photolysis is accepted as making a contribution to breakdown. In water, clethodim is highly persistent with half-life's of 128 days in the aqueous phase and 214 days in the sediment. The reported hydrolysis half life at pH 7-9 is 300 days. Clethodim is rapidly degraded on the leaf surfaces by an acid-catalysed reaction and photolysis. The remaining clethodim will rapidly penetrate the cuticle and enter the plant.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: Isolate and post spill area. Wear prescribed protective clothing and equipment. 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

Transport Information: This product is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail.

SECTION 15 REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of the Safe Work Australia. (Xn - harmful). 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. 67809.

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: 28 November 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 website. (2012).
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.