



MATERIAL SAFETY DATA SHEET

TITAN CLETHODIM 240 HERBICIDE

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	Titan Clethodim 240 Herbicide
Product Code	-
Other Names	-
Product Use	Agricultural Herbicide
Company Name	Titan Ag Pty Ltd
Address	15/16 Princes Street Newport NSW 2106
Telephone Number	02 9999 6655
Emergency Telephone	02 9999 6655

2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE. NON DANGEROUS GOODS.

Classified as hazardous according to the criteria of Safe Work Australia.

Hazards	Xn - Harmful
Risk Phrases	R36/38 - Irritating to eyes and skin. 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. S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S337/39 - Wear suitable gloves and eye/face protection. S46 - If swallowed, seek medical advice immediately and show this container or label.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient (common name)	CAS Number	Proportion
clethodim	99129-21-2	24%
liquid hydrocarbon emulsifier	64742-94-5	63%
	-	to 100%

4. FIRST AID MEASURES

Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.
Ingestion	If swallowed, do not induce vomiting. Wash mouth with water. Give water to drink. Never give anything by mouth to an unconscious person.

	<p>If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Can cause chemical pneumonitis and pulmonary oedema. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure. Seek immediate medical attention.</p>
Skin	<p>Remove contaminated clothing and wash affected areas with soap and water. Seek medical attention if symptoms persist. Launder clothing before reuse.</p>
Eyes	<p>In case of eye contact, check for and remove any contact lenses. Immediately irrigate eyes with plenty of running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.</p>
Medical Advice	<p>Apply basic aid and decontamination procedures. Treat symptomatically. The main hazard is aspiration of the solvent into the lungs causing chemical pneumonitis.</p>

5. FIRE FIGHTING MEASURES

	<p>For major fires call the Fire Brigade. Ensure that an escape path is available from any fire.</p>
Suitable Extinguishing Media	<p>Large fires - Water spray or foam.</p>
Hazardous Combustion Products	<p>Smaller fires – dry chemical powder and carbon dioxide. Carbon dioxide, water vapour, oxides of nitrogen and toxic compounds of chlorine. Incomplete combustion can produce carbon monoxide.</p>
Firefighting Equipment	<p>Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing.</p>
Unusual Fire or Explosion Hazards	<p>Combustible product – C1. There is a moderate risk of an explosion if commercial quantities of this product are involved in a fire. Violent steam generation or eruption may occur if direct water stream is applied on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances.</p>
Hazchem Code	<p>Not allocated</p>

6. ACCIDENTAL RELEASE MEASURES

Spills	<p>In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing. Contain spill and absorb with earth, clay, sand, or other absorbent material and collect into labelled containers for disposal. If necessary, wash the spill area with an alkali detergent and water. Launder protective clothing before re-use.</p>
---------------	---

7. HANDLING AND STORAGE

Handling	<p>Avoid contact with eyes and skin. Do not inhale spray mist. Use of safe work practices is recommended. Observe good personal hygiene.</p>
-----------------	--

Storage Store in the closed, original container in a dry, well ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight. Keep container tightly sealed and do not store with seed, fertilisers or foodstuffs. Do not use or store near flame, sparks or hot surfaces.
Do not weld, heat or drill container. Emptied containers still contains hazardous or explosive vapour or liquid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Standards (ASCC)	Hydrocarbon (total): TWA: 17ppm / 100 mg/m ³ STEL: - ppm / - mg/m ³
Engineering Controls	Local exhaust ventilation is recommended when vapours and mists can be released in excess of established airborne exposure limits.
Respiratory Protection	Use Safe Work Australia approved full face supplied air respirator if high airborne concentrations of the material are present. See Australian Standards AS/NZS 1715 and 1716 for more information.
Eye Protection	Protective glasses or goggles and face shield. See Australian Standards AS/NZS 1336 and 1337 for more information.
Skin Protection	Elbow-length gloves and protective clothing. See Australian Standards AS/NZS 2161, 2210.1 and 2210.2 for more information.
Hygienic Practices	Food, beverages and tobacco products should not be stored or consumed where this material is in use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Amber liquid
Odour	Mild aromatic odour
Solubility in Water	Emulsifiable
Boiling Point	No information available
Freezing Point	No information available
Vapour Pressure	No information available
Specific Gravity	0.95g/mL at 20°C
pH	3.6 as 5% emulsion
Odour Threshold	No information available
Evaporation Rate	No information available
Autoignition Temperature	No information available
Flash Point	62-65.6°C (Setaflash Closed Cup)
Upper Flammability Limit	No information available
Lower Flammability Limit	No information available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal storage conditions. Unstable at extreme pHs, temperature and upon exposure to UV light.
Incompatible Materials	Strong oxidising agents such as chlorates, nitrates and peroxides.
Hazardous Decomposition Products	Carbon dioxide, water vapour, oxides of nitrogen and toxic compounds of chlorine. Incomplete combustion can produce carbon monoxide.
Hazardous Polymerization Conditions to Avoid	Will not occur. Avoid direct sunlight, sources of heat, naked flames and sparks.

11. TOXICOLOGICAL INFORMATION

Toxicity	Clethodim: Oral LD ₅₀ (rat - male) = 1630mg/kg Oral LD ₅₀ (rat - female) = 1360mg/kg Dermal LD ₅₀ (rabbit) > 5000mg/kg Inhalation LC ₅₀ (rat) > 3.9mg/L – 4 hour
Routes of Exposure	Inhalation, ingestion, eye and skin
Acute Health Effects	<p>Inhalation: Breathing vapour can cause headaches, dizziness and nausea. Breathing in high concentrations can cause central nervous system depression, loss of coordination, impaired judgement and unconsciousness.</p> <p>Ingestion: Harmful if swallowed. Can cause nausea, vomiting, abdominal pain, diarrhea, blurred vision, profuse sweating and muscle twitching. Aspiration into the lung from vomiting may cause chemical pneumonitis or pulmonary oedema.</p> <p>Eye: This product is a moderate eye irritant and could cause prolonged impairment of vision. Symptoms may include pain, tears, swelling, redness and blurred vision.</p> <p>Skin: May cause mild skin irritation.</p>
Chronic Health Effects	Prolonged contact with the concentrate can cause de-fatting of the skin and may result in dermatitis. Chronic exposure can cause damage to the liver.
Existing Conditions Aggravated by Exposure	No information available.
Carcinogenicity	This product does NOT contain any IARC listed chemicals.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Clethodim:

Aquatic organisms:

LC₅₀ (rainbow trout) = 67mg/L – 96 hour

LC₅₀ (bluegill sunfish) = 120 mg/L – 96 hour

LC₅₀ (*Daphnia magna*) = 120 mg/L – 48 hour

EC₅₀ (fresh water algae) = 57.8 mg/L – 5 days

Bees:

LD₅₀ > 100µg/bee

It is not toxic to bees.

Birds:

LD₅₀ (mallard duck) > 6000 mg/kg

LD₅₀ (bobwhite quail) >2000 mg/kg

Mobility

Clethodim may be highly persistent in the aquatic environment. Reported half-lives for clethodim in the aquatic environment are 128 days in the aqueous phase and 214 days in the sediment (294).

13. DISPOSAL CONSIDERATIONS

Disposal methods and containers

Instructions concerning the disposal of this product and its containers are given on the product label.

Dispose according to applicable local and state government regulations.

Special precautions for landfill or incineration

Please consult your state Land Waste Management Authority for more information.

14. TRANSPORT INFORMATION

Not classified as a dangerous good according to the Australian Code for the Transport of Dangerous goods by road or rail.

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Hazchem Code	Not applicable
Packing Group	Not applicable
Special Precautions	Not applicable

15. REGULATORY INFORMATION

Clethodim and liquid hydrocarbon are listed in the Australian Inventory of Chemical Substances (AICS).

SUSDP Classification: 5

16. OTHER INFORMATION

Date of Preparation	Rev 2.0 (11/04/2013)
Last Revision of MSDS	Rev 1.0 (04/03/2008)
Prepared by	MSDS.COM.AU Pty Ltd

www.msds.com.au



MATERIAL SAFETY DATA SHEET

Abbreviations Used

IARC: International Agency for Research on Cancer
STEL: Short term exposure limit
TWA: Time weighted average

Emergency Contacts

Titan Ag Pty Ltd	02 9986 2943
Titan Ag Pty Ltd – Emergency Number	02 9986 2943
Police and Fire Brigade	000
Poisons Information Centre	13 11 26

The information contained in this material safety data sheet is provided in good faith and is believed to be accurate at the date of issuance. Titan Ag Pty Ltd makes no representation of the accuracy or comprehensiveness of the information and to the full extent allowed by law excludes all liability for any loss or damage related to the supply or use of the information in this material safety data sheet. MSDS.COM.AU Pty Ltd is not in a position to warrant the accuracy of the data herein. The user is cautioned to make their own determinations as to the suitability of the information provided to the particular circumstances in which the product is used.

Please read instructions / label before using product.

This MSDS is prepared in accord with the Safe Work Australia document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]