



SAFETY DATA SHEET ARROW 240 EC HERBICIDE

Section 1: Identification of the Substance and Supplier

Product name : ARROW 240 EC HERBICIDE
Chemical name of active Clethodim 240 EC
Ingredient(s): \pm -2-[(E)-[(E)-3-chloroallyloxyimino]]-5-[2-ethylthio]=propyl]-3-hydroxycyclohex-2-enone
Supplier: ADAMA New Zealand Limited
Level1/19 Elms Street, Wakatu Estate, Stoke, Nelson, New Zealand
P.O.Box 1799, Nelson New Zealand.
Telephone +64 3 543 8275 Fax: +64 3 543 8274
Emergency Telephone: 0800 POISON (0800 764 766)

Section 2: Hazards Identification

Hazard Classifications: 3.1D, 6.1E, 6.3A, 6.4A, 6.9B, 9.1B, 9.2A

Most important hazards: **WARNING:** Maybe harmful if swallowed, inhaled or absorbed through the skin.
May cause skin and eye irritation.
May cause reproductive/development damage from repeated oral exposure.
Avoid eye and skin contact and avoid inhalation
Flammability: Warning- Combustible liquid – keep away from source of ignition.
Toxic to aquatic organisms with long-lasting effects. Avoid contamination of any water supply with product or empty container.
Toxic to the soil environment.

Section 3. Composition/information on Ingredients

Substance/preparation	Preparation				
<u>Information on hazardous ingredients *</u>	CAS No.	Value	EC Number	Symbol	R-Phrases
Common name					
Clethodim	99129-21-2	23-26	-	-	-
Naphthalene	91-20-3	5 -7	202-049-5	Xn, N	R22-50/53
Solvent naphtha (petroleum), Heavy arom. (solvesso)	64742-94-5	65-71	265-198-5	Xn	R65

- **Occupational Exposure Limit(s), if available, are listed in section 8**

Section 4: First-Aid Measures

First-aid measures: Remove victim from area of exposure. Wash off remaining material with plenty of water.

Inhalation: Remove victim to fresh air. If breathing is difficult: give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion: Wash out mouth with plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Skin contact: Remove contaminated clothing. Wash away remainder with water and Soap. Followed by a warm water rinse. Obtain medical attention.

Eye contact: Wash out with plenty of water with the eyelid held wide open for at least 15 minutes. Consult eye specialist immediately.

Notes to a physician: There is no specific antidote. Treat symptomatically and give supportive therapy.

Protection of first-aiders: Use appropriate protection (see section 8).



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Section 5: Fire-Fighting Measures

Extinguishing media

Suitable: Dry chemical, carbon dioxide.

Unusual fire/explosion hazards: Flashback may occur along vapour trail.

Hazardous thermal (de)composition products: Chloride compounds, nitrogen oxides and Sulfur oxides.

Protection of fire-fighters: Self-contained breathing apparatus and total protection required in enclosed areas.

Section 6: Accidental Release Measures

Personal precautions: Wear appropriate protective clothing. (see section 8)

Environmental precautions: Do not discharge into drains or the environment.

Methods for cleaning up: Keep away from: open flame, sparks and heat. Absorb remainder in sand or other inert material. Dispose of in an authorised waste collecting point.

Section 7: Handling and Storage

Handling: Avoid contact with skin and eyes. Ventilation required. Keep away from: sparks, open flame and direct sunlight.

Storage: Store in the original, unopened container in a cool, dry place, out of direct sunlight and away from stockfeed or foodstuffs.
As a Class 9 Substance with Ecotoxicity Classifications, storage of Arrow Herbicide must be carried out in such a manner as to prevent contamination of waterways. Stores containing more than 1000L of Arrow Herbicide require bunding and are subject to signage. Storage must generally be in accordance with The New Zealand Standard for the Management of Agrichemicals (NZS8409)

Section 8: Exposure Controls/Personal Protection

Engineering measures: Ventilation required.

Hygiene measures: When handling do not eat, drink or smoke. Wash hands thoroughly after handling. Wash clothing separately before re-use.

Occupational Exposure Limits:

Common name: **Clethodim**
Not Established

Common name: **Naphthalene**
Germany MAK: 10 ppm; 50 mg/m³
USA TWA (ACGIH) 10 ppm; 52 mg/m³
STEL (ACGIH) 15 ppm; 79 mg/m³

Common name: **Solvent Naphta (petroleum), heavy arom. (solvesso)**
TLV (USA) 10 ppm or 52 mg/m³

Personal protective equipment:

Respiratory system: Respiratory protection is not required if good ventilation is maintained.

Skin and body: Wear suitable protective clothing. Chemical resistant boots.

Hands: Chemical resistant gloves.

Eyes: Safety goggles or Chemical goggles.



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Section 9: Physical and Chemical Properties

Physical state:	Liquid
Colour:	Amber
Odour:	Aromatic
Density:	0.967 g/mL @ 20°C
Vapour Pressure:	< 1 x 10 ⁻² mPa @ 20°C (Clethodim)
Octanol/water partition coefficient	log = 4.18 @ pH 7 (Clethodim)
pH:	4.4 (1% water)
Flash Point:	64.8°C
Flammability:	Not Flammable
Explosive properties:	Not Explosive
Oxidation properties:	Not oxidizing

Section 10: Stability and Reactivity

Stability:	Not subject to polymerization
Materials to avoid:	Oxidising agents, acids and alkali
Hazardous reactions :	
Hazardous decomposition Products:	Chloride compounds, nitrogen oxides and Sulfur oxides.

Section 11. Toxicological Information

Preparation

Acute toxicity - Oral:	LD ₅₀ (rat) >2,000 mg/kg
Acute toxicity - Dermal:	LD ₅₀ (rat) >5,000 mg/kg
Acute toxicity – Inhalation:	LC ₅₀ (rat) 2.1 mg/L
Skin irritation:	Moderately Irritating (rabbit).
Eye irritation:	Moderately irritating (rabbit).
Sensitization :	Non Sensitizer (Guinea-pig)
Common name:	CLETHODIM
Chronic toxicity:	NOEL: rat = 500 ppm; 19 mg/kg/day (2 year) mice = 200 ppm (male), 1000 ppm (female) 18 months dog = 1 mg/kg/day (1 year)
Carcinogenicity:	EPA: None IARC: None EU: None
Mutagenicity:	Not mutagenic
Reproduction toxicity:	NOEL: (rat) > 2,500 ppm; 51 mg/kg/day (2 generation)
Other information:	Teratogenicity: NOEL (rat) = 100 mg/kg/day (maternal) NOEL (rat) = 100 mg/kg/day (fetal) NOEL (rabbit) = 25 mg/kg/day (Maternal) NOEL (rabbit) = 300 mg/kg/day (fetal)

Section 12: Ecological Information

Common name:	Clethodim
Persistence/degradability:	Soil The product is not persistent. Half-life time (t _{1/2}): 1-3 days Degradation is primarily via: microorganisms
	Water Degraded slowly by hydrolysis Half-life time (t _{1/2}): 28 days (pH-5) 300 days (pH-7), 310 days (pH-9) @ 25°C
Ecotoxicity:	Birds:



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Bobwhite quail LD₅₀ >2,000 mg/kg
LC₅₀ > 4,270 ppm (8 days)
Mallard duck LC₅₀ > 3,978 ppm (8 days)
LD₅₀ > 6,000 ppm

Fish:
LC₅₀ (48 hours) > 120 mg/l

Bees:
Oral LD₅₀ (48 hours) > 100µg/bee

Harmful to aquatic organisms. Low toxicity: birds Not toxic: bees

Section 13: Disposal Considerations

Methods of disposal: Triple rinse empty container and add rinsate to spray tank. Empty containers and product should NOT be burnt. Crush or puncture containers and bury in a suitable landfill, away from watercourses or if appropriate, recycle. Do not contaminate ponds, waterways and ditches with product or used container.

Section 14: Transport Information

UN Number 3082
Proper shipping name Environmentally hazardous substance, Liquid, N.O.S, (Clethodim)
DG Class 9
Packing Group III
Hazchem Code 2X
Marine Pollutant Yes
IER Guide page 47
National transport regulations: Do not carry this product on a passenger service vehicle.

Segregation: Check the land transport Rule Dangerous Goods 1999, Rule 45001 for additional information. Sea transport may require additional segregation. Refer: NZS5433; Sea Segregation, or the International Maritime Dangerous Goods Code for details.

Section 15: Regulatory Information

New Zealand Regulatory Information:

NZFSA Approval: Registered pursuant to the ACVM Act 1997. No P7342
See www.nzfsa.govt.nz/acvm for registration conditions.

Approved pursuant to the HSNO Act 1996, Approval No. HSR002703
See www.ermanz.govt.nz for registration conditions.

HSNO Classifications: 3.1D, 6.1E, 6.3A, 6.4A , 6.9B, 9.1B, 9.2A



ECOTOXIC



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APPROVED HANDLER: This product must be under the care of an approved handler when it is applied in a wide dispersive manner or used by a commercial contractor

RECORD KEEPING: Records of use must be kept under certain circumstances – see The New Zealand Standards for Management of Agrichemicals (NZS8409) for details.

Section 16: Other Information

Note: This product is a registered agricultural chemical and must be therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

The information contained in the Safety Data sheet is correct to the best of our knowledge at the date of issue. It is intended as a guide for the safe use, handling, disposal, storage and transportation and is not intended as a warranty or as a specification. The information relates only to the product specified and may not be suitable for combinations with other materials or in processes other than those specifically described herein.

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HISTORY

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