

Infosafe No™ 3NUM7 Issue Date : April 2024 ISSUED by NUFARMNZ

Product Name **SEQUENCE**

## Section 1 - Identification

<b>Product Identifier</b>	SEQUENCE
<b>Product Code</b>	00611
<b>Product Type</b>	Selective herbicide
<b>Company Name</b>	Nufarm NZ
<b>Address</b>	Central Park, Building 3, Level 4, 666 Great South Road Ellerslie Auckland 1051 New Zealand
<b>Telephone/Fax Number</b>	Tel: 0-9-270 4150
<b>Emergency Phone Number</b>	0800 651 911
<b>Email</b>	nzinfo@nufarm.com
<b>Recommended uses and any restrictions on use or supply</b>	A selective post emergent herbicide for grass weed control in fodder beet, sugar beet, orchards and vineyards, broadleaf crops and forestry.
<b>Other Information</b>	This SDS describes, to the best of our knowledge, the properties of the concentrated product. The physical properties and some of the assessments do not apply to the properties of the product once it has been diluted for application. Acute health effects of the diluted product are likely to be much less severe.

## Section 2 - Hazard(s) Identification

<b>GHS classification of the substance/mixture</b>	Flammable liquids: Category 4 Aspiration hazard: Category 1 Skin corrosion/irritation: Category 2 Serious eye damage Category 1 Specific target organ toxicity - repeated exposure: Category 2 Hazardous to the terrestrial environment: Hazardous to soil organisms Hazardous to the terrestrial environment: Hazardous to terrestrial vertebrates Hazardous to the aquatic environment chronic Category 3
<b>Signal Word (s)</b>	DANGER
<b>Hazard Statement (s)</b>	H227 Combustible liquid H303 May be harmful if swallowed H313 May be harmful in contact with skin H333 May be harmful if inhaled H315 Causes skin irritation H318 Causes serious eye damage H373 May cause liver damage repeated exposure H412 Harmful to aquatic life with long lasting effects H421 very toxic to the soil environment H433 Harmful to terrestrial vertebrates
<b>Precautionary Statement – General</b>	P101 If medical advice is needed, have product container or label at hand. P102 Keep out of reach of children. P103 Read carefully and follow all instructions.
<b>Pictogram (s)</b>	Corrosion, Health hazard, Exclamation mark, Environment



<b>Precautionary Statement – Prevention</b>	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
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<b>Precautionary Statement – Response</b>	<p>P302+P352 IF ON SKIN: Wash with plenty of water.</p> <p>P304+P312 IF INHALED: Call a POISON CENTER/doctor if you feel unwell.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P310 Immediately call a POISON CENTER/doctor.</p> <p>P312 Call a POISON CENTER/doctor if you feel unwell.</p> <p>P314 Get medical advice/attention if you feel unwell.</p> <p>P321 Specific treatment (see on this label).</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P370+P378 In case of fire: Use to extinguish.</p> <p>P391 Collect spillage.</p>
<b>Precautionary Statement – Storage</b>	<p>P403+P235 Store in a well-ventilated place. Keep cool.</p> <p>P405 Store locked up.</p>
<b>Precautionary Statement – Disposal</b>	<p>P501 Dispose of contents/container to an approved landfill.</p>

## Section 3 - Composition and Information on Ingredients

<b>Chemical Characterization</b>	Liquid		
<b>Ingredients</b>	<b>Name</b>	<b>CAS</b>	<b>Proportion</b>
	Clethodim	99129-21-2	240 g/L
	Aromatic Hydrocarbon	64742-94-5	>60%

## Section 4 - First Aid Measures

<b>First-aid Measures</b>	For advice contact the National Poisons Centre 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth-to-nose rather than mouth-to mouth. Obtain medical attention.
<b>Inhalation</b>	Remove patient to fresh air. Lay down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance immediately.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. If swallowed do NOT induce vomiting. For advice, contact the National Poisons Centre (0800 764 766). Seek medical assistance immediately.
<b>Skin</b>	Immediately flush body and clothes with large amounts of water. Remove contaminated clothing and footwear. Wash affected areas with soap and water. If a large area is affected seek medical assistance. Do not scrub the skin.
<b>Eye</b>	Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Seek medical assistance. Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Remove contact lenses if present and easy to do. Seek medical assistance.
<b>First-aid Facilities</b>	Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.
<b>Advice to Doctor</b>	If vomiting occurs, solvent present may cause pulmonary pneumonitis. Provide basic first aid measures, decontaminate individual and treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

## Section 5 - Firefighting Measures

<b>Suitable Extinguishing Media</b>	Water fog, foam, carbon dioxide or dry chemical.
<b>Unsuitable Extinguishing Media</b>	Do not use water in a jet.
<b>Hazards from Combustion Products</b>	If involved in a fire, it may emit oxides of sulphur, nitrogen and carbon, and toxic chlorine compounds. Especially in extreme heat.

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<b>Special protective equipment for fire-fighters</b>	Full protective clothing and self-contained breathing apparatus.
<b>Specific Methods</b>	Keep up wind. Do not allow washings to reach sewage or effluent systems. Take precaution to prevent formation of explosive mixture. Keep away from sources of ignition. No smoking, keep container tightly closed. Product of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminated personal protective equipment and fire fighting equipment before reuse.
<b>Specific hazards arising from the chemical</b>	Combustible liquid. Flashpoint = 67.5°C
<b>Decomposition Temperature</b>	Information is not available.
<b>Other Information</b>	Location Certificate: Not applicable Hazardous Atmosphere Zone: Not applicable Number of Fire Extinguishers: 2 for 500L or more

## Section 6 - Accidental Release Measures

<b>Spills and Disposal</b>	Wear protective clothing. Clear area of unprotected personnel. Eliminate all ignition sources and naked lights. Use non-sparking utensils. Contain spill and absorb with sand, soil or absorbent granules. If spill does enter waterways contact the local authority. Collect in an appropriate sealable container for disposal in an approved landfill. Prevent material from coming into contact with Class 1, 2, 3.2, 4 or 5 substances. Wash area with water and detergent and absorb with inert material. Dispose of waste safely in an approved landfill.
<b>Personal Protection</b>	For appropriate personal protective equipment (PPE), refer Section 8.
<b>Environmental Precautions</b>	This product is a herbicide and spills can damage crops, pastures and desirable vegetation. Prevent from entering drains, waterways and sewers. Use earthen bunds or absorbent bunding to prevent spreading of spillage.

## Section 7 - Handling and Storage

<b>Precautions for Safe Handling</b>	The person mixing or applying SEQUENCE must be a 'Qualified Contractor' or 'Qualified Loader'. For more information refer to the Hazardous Substances Property Controls Notice 2017. It is the duty of the PCBU that a person who uses, handles, manufactures or stores a hazardous substance (including hazardous waste) is provided information, instruction and training in accordance with Regulation 4.5 of the Health and Safety at work (Hazardous Substances) Regulations 2017. Keep away from naked flame and hot surfaces. Do not store or use near heat or flame. Avoid skin and eye contact and inhalation of spray mist. This product must not be applied onto or into water. BEWARE: Spray drift hazard. Apply this product carefully. Spray drift may cause serious damage to other desirable plants. CERTIFIED HANDLER: Is not required. TRACKING: Is not required. RECORD KEEPING: Records of use as described in NZS8409 Management of Agrichemicals must be kept if 3L or more of SEQUENCE is applied within 24 hours.
<b>Conditions for safe storage, including any incompatibilities</b>	Keep out of reach of children. Do not store near heat or flame. Do not store with class 1, 2, 3.2, 4 or 5 substances. Store in original container tightly closed, in a well-ventilated area, as cool as possible, away from sources of ignition and foodstuffs. Do not store for

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	prolonged periods in direct sunlight. Store in accordance with NZS8409 Management of Agrichemicals. Stores containing 100L are subject to signage,1000L of SEQUENCE require secondary containment and more than 1000L require emergency response plans. Stores exceeding 500 litres of this substance must have at least 2 fire extinguishers.
<b>Corrosiveness</b>	Corrosive to eyes.
<b>Other Information</b>	Always read the label and any attached leaflet before use. Aggregate Storage Volume Thresholds: When stored with substances of the same hazard classification the aggregate quantity must be considered. For full details refer to the current NZS8409 Management of Agrichemicals and the HSNO Regulations.

## Section 8 - Exposure Controls and Personal Protection

<b>Occupational Exposure Limits (OEL)</b>	No exposure limits (WES, TEL or EEL's) have been specifically assigned for this product.
<b>Appropriate Engineering Controls</b>	Handle in well ventilated areas, generally natural ventilation is adequate.
<b>Personal Protective Equipment</b>	Avoid skin and eye contact and inhalation of spray mist. When opening the container,preparing spray and using the prepared spray wear safety goggles,chemically resistant gloves,cotton overalls buttoned to the neck and wrist,and boots.
<b>Hygiene Measures</b>	Do not eat,drink or smoke while using. Remove protective clothing and wash hands and face thoroughly before meals and after work.Wash protective clothing daily after work.

## Section 9 - Physical and Chemical Properties

<b>Form</b>	Liquid
<b>Appearance</b>	Amber liquid
<b>Odour</b>	Aromatic
<b>Decomposition Temperature</b>	Information is not available.
<b>Solubility in Water</b>	Water dispersible
<b>Solubility in Organic Solvents</b>	Clethodim active ingredient = Soluble in most organic solvents.
<b>Specific Gravity</b>	0.96
<b>pH</b>	4-7
<b>Vapour Pressure</b>	<1x10 <sup>-2</sup> mPa @ 20°C (clethodim)
<b>Vapour Density (Air=1)</b>	Information is not available.
<b>Odour Threshold</b>	Information is not available.
<b>Partition Coefficient: n-octanol/water</b>	Information is not available.
<b>Flash Point</b>	67.5°C
<b>Flammability</b>	Combustible
<b>Auto-ignition Temperature</b>	Information is not available.
<b>Flammable Limits - Lower</b>	Information is not available.
<b>Flammable Limits - Upper</b>	Information is not available.

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<b>Initial Boiling Point and Boiling Range</b>	Decomposes below boiling point.
<b>Kinematic Viscosity</b>	Information is not available.
<b>Particle Characteristics</b>	Information is not available.
<b>Relative Density</b>	Clethodim active ingredient = S.g./density 1.14(20°C)
<b>Melting/Freezing Point</b>	Information is not available.
<b>Other Information</b>	(EC) Emulsifiable concentrate

## Section 10 - Stability and Reactivity

<b>Chemical Stability</b>	Stable under normal conditions of handling and storage.
<b>Conditions to Avoid</b>	Avoid oxidising agents, acids and alkalis. Avoid high temperatures.
<b>Hazardous Decomposition Products</b>	Hazardous decomposition products are not expected to form during normal storage.
<b>Hazardous Polymerization</b>	Hazardous polymerisation will not occur.
<b>Other Information</b>	Clethodim is not stable at extreme pH or temperature, or to exposure to UV light.

## Section 11 - Toxicological Information

<b>Acute Toxicity - Oral</b>	LD50(rat) = 1,360mg/kg for clethodim
<b>Acute Toxicity - Inhalation</b>	LC50(rat, 4hr) = >3.9mg/L total aerosol for clethodim
<b>Acute Toxicity - Dermal</b>	LD50(rat) = > 5,000mg/kg for clethodim
<b>Ingestion</b>	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.
<b>Inhalation</b>	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.
<b>Skin</b>	Will irritate the skin. Prolonged contact with the concentrate can cause defatting of the skin and may result in dermatitis.
<b>Eye</b>	Will irritate the eyes. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Symptoms may include pain, tears, swelling, redness, and blurred vision.
<b>Skin Corrosion/Irritation</b>	The product is a skin irritant.
<b>Serious Eye Damage/Irritation</b>	The product is an eye irritant.
<b>Skin Sensitisation</b>	Not a sensitiser in the Buehler Guinea pig sensitisation test.
<b>Germ Cell Mutagenicity</b>	Information is not available.
<b>Carcinogenicity</b>	Data indicates no carcinogenic effects.
<b>Reproductive Toxicity</b>	No such effects have been observed in the absence of maternal toxicity.
<b>STOT - Single Exposure</b>	Information is not available.

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<b>STOT - Repeated Exposure</b>	May cause liver damage repeated exposure
<b>Subchronic/Chronic Toxicity</b>	Target organ toxicant = liver
<b>Chronic Effects</b>	Chronic exposure can cause damage to the liver. Increased liver weights and anaemia have been observed in animals exposed to clethodim technical.
<b>Other Information</b>	The Australian Acceptable Daily Intake (ADI) for clethodim for a human is 0.01 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 1 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Aust Govt Dept. of APVMA, 'ADI List', Edition 4/2023).

## Section 12 - Ecological Information

<b>Ecotoxicity</b>	Avoid contamination of any water supply with chemical or empty container.
<b>Persistence and Degradability</b>	In soil, aerobic DT50 1-3 days, Kd 0.08-1.6 (5 soil types)
<b>Mobility</b>	Information is not available.
<b>Bioaccumulative Potential</b>	Not bioaccumulative (clethodim)
<b>Short summary of assessment of environmental impact</b>	In animals, clethodim metabolises to the sulfoxide and sulfone. In plants, clethodim metabolises to the sulfoxide, sulfone and S-methyl sulfoxide.
<b>Acute Toxicity - Fish</b>	Rainbow trout: 96-hour LC50 = 67, bluegill fish >120mg/L for clethodim
<b>Acute Toxicity - Daphnia</b>	LC50 (48h) >120 mg/L; NOEC 60mg/L for clethodim
<b>Acute Toxicity - Algae</b>	EC50(5d) for freshwater algae = 57.8 mg/L for clethodim
<b>Acute Toxicity - Other Organisms</b>	The following data is for the active ingredient: Birds: Oral LD50 for bobwhite quail >2,000mg/kg for clethodim; Dietary LC50 for mallard ducks >6,000mg/kg for clethodim. Worm: LC50 = 454mg/kg soil for clethodim Bees: LD50 (contact) >100µg/bee for Clethodim

## Section 13 - Disposal Considerations

<b>Product Disposal</b>	Dispose of product only by using according to the label, or at an approved landfill.
<b>Container Disposal</b>	Triple rinse empty container and add rinsate to the spray tank. Recycle empty container. Otherwise crush and bury in a suitable landfill.

## Section 14 - Transport Information

<b>Transport Information</b>	It is good practice not to transport agricultural chemical products with food, food related materials and animal feedstuffs.
<b>Storage and Transport</b>	Not classified as Dangerous Goods for transport in New Zealand.
<b>Other Information</b>	Do not carry more than 1L of SEQUENCE on a passenger service vehicle.  Segregation: Check the latest Land Transport Rule Dangerous Goods Rule 45001 for additional information. Sea transport may require additional segregation. Refer NZS5433 sea segregation for details.

## Section 15 - Regulatory Information

<b>National and or International Regulatory Information</b>	Registered pursuant to the ACVM Act 1997, No. P8239 See <a href="http://www.foodsafety.govt.nz">www.foodsafety.govt.nz</a> for registration conditions Approved pursuant to the HSNO Act 1996, Approval Code HSR100460 See <a href="http://www.epa.govt.nz">www.epa.govt.nz</a> for approval controls.
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**Packaging and Labelling** READ SAFETY DIRECTIONS BEFORE OPENING OR USING  
KEEP OUT OF REACH OF CHILDREN  
KEEP LOCKED UP

## Section 16 - Any Other Relevant Information

**Date of preparation** January 2019.

**or last revision of SDS**

**Contact Person/Point** IN AN EMERGENCY, DIAL 111 - FIRE OR POLICE  
24Hr Tollfree Emergency No: 0800 651 911  
24Hr Emergency No: National Poisons Centre Phone: 0800 764 766

**Revisions Highlighted** 5 yearly review. Various changes and updates made to the document to comply with GHS7.  
...End Of MSDS...

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