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Safety Data Sheet: RainGard

1. IDENTIFICATION

Product Name: RainGard
Other Names: Pinolene (a terpene non-ionic polymer)
Recommended Use: Agricultural Adjuvant (sticker/spreader)
Distributor: Key Industries Ltd
Address: P.O. Box 65070, Mairangi Bay, Auckland 0754
Telephone: 09 917 1791

Supplier: MILLER CHEMICAL & FERTILIZER (AUSTRALIA) PTY LTD
Address: Level 3 / 141-149 Ifould Street, Adelaide, SA 5000
Tel: +61 08 8132 1644 Fax: +61 8 08 8132

Emergency Phone: 0800 CHEMCALL (0800 243 622) 24 hours
National Poisons Centre: 0800 POISON (0800 764 766)

2. HAZARDS IDENTIFICATION

Hazardous substance according to the HSNO Act 1996 Hazardous Substances (Hazard Classification) Notice 2020.
Approval: HSR002503
Hazard Classifications: Skin irritation Category 2, Skin sensitisation Category 1, Hazardous to the aquatic environment acute Category 1, Hazardous to the aquatic environment chronic Category 1.
Pictograms:

Signal word: WARNING
Hazard statements:
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life and with long-lasting effects.

Precautionary statements:
Prevention:
P103 Read label before use.
P261 Avoid breathing mist/vapours/spray.
P264 Wash hands and exposed skin thoroughly before use.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P333 + P313 If skin irritation or rash occurs: Get medical advice.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
Storage: -

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Disposal: P501 Dispose of product and container in accordance with local regulations.

Other information:

Hazardous Substance (Labelling) Notice 2017

Applicable to agrichemicals

Take all reasonable steps to ensure that the substance does not cause any significant adverse effects to the environment beyond the application area.
Do not apply directly into or onto water.

NZS5433:2020 Transportation of Dangerous Goods on Land

Classified as DG Class 9 for transport.

3. COMPOSITION: INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (%w/w)
Oligomerisation products of beta-pinene	Not available	96
Alcohols C12-16 ethoxylated	68551-12-2	1 – 2.5
Benzenesulfonic acid, C10-13-alkyl derivs., calcium salt	1335202-81-7	0.5 – 1.5
Other non-hazardous materials	mixture	balance

*previously identified as di-1-p-methene (CAS No 34363-01-4)

4. FIRST AID MEASURES

Consult the National Poisons Information Centre 0800 POISON (0800 764 766) or a doctor in every case of suspected chemical poisoning. Have product label or Safety Data Sheet at hand.
INGESTION: Rinse mouth. Do not induce vomiting. Get immediate medical advice.
If vomiting occurs spontaneously, keep head below hips to prevent vomit entering lungs.
SKIN CONTACT: Wash with soap and water. If irritation or rash develops, obtain medical advice.
EYE CONTACT: Flush with running water for at least 15 minutes. Remove contact lenses if present, and easy to do after 5 minutes before continuing rinsing. If irritation develops, obtain medical assistance.
INHALATION: Remove patient to fresh air and keep at rest until recovered. Get medical advice if personal feels unwell.

First Aid facilities:
Provide eye baths and safety showers close to work areas.
Advice to Doctor:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flashpoint: Non-flammable.
Suitable extinguishing media: Water fog, fine water spray, carbon dioxide, dry chemical, foam.
Hazards from combustion products: Generates carbon dioxide, carbon monoxide and smoke.
Precautions for fire fighters and special protective equipment: Self-contained breathing apparatus with full face-piece and protective clothing. Cool fire exposed containers with water spray.
Hazchem Code: 3Z

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6. ACCIDENTAL RELEASE MEASURES:

Personal Precautions:
Wear appropriate personal protection equipment to prevent exposure by inhalation, and to skin and eyes. Ensure adequate ventilation. Wear approved respirator where mist or dust of unknown concentration may be generated. Self-contained breathing apparatus is recommended.
Environmental Precautions:
Contain spillage and prevent from entering drains, sewer or any water course. In event of spillage contaminating a water-course, notify the Police, local Health Protection Officer and Council.
Methods and materials for containment
Dyke and contain spillage with dry sand, earth, sawdust or vermiculite and transfer liquid and solids separately to labelled containers for recovery or disposal. Clean up and report spills immediately.

7. HANDLING AND STORAGE

Precautions for Safe Handling:
Read and observe all precautions and instructions on the label.
Wear chemically impervious gloves and long sleeved clothing. Wear approved safety glasses or goggles. Mechanical ventilation should be used when handling this product in enclosed spaces. Wearing a respirator is not normally required when handling this product, but recommended in the absence of proper mechanical ventilation. Changing out of work clothing and showering recommended at the end of each work shift. Contaminated work clothing should not be allowed out of the workplace.Wash work clothes separately from other household clothing.
Do not contaminate water, feed, or food by storage, handling, or disposal.
Avoid contact with food, clothing, medicines or other household goods during transportation.
Conditions for Safe Storage:
Store containers upright and closed in original container. Store in a cool, dry place away from direct sunlight and in well-ventilated areas.
Do not store with explosives, oxidizers and flammable gases and solids. Keep away from sources of ignition, heat and strong oxidizers. Store apart from animal and human foodstuffs.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Health Exposure Standards: Workplace Exposure Standards (WES), have not been set by Worksafe NZ for compounds in this substance:
Manufacturers worker Derived No-Effect Level (DNEL):
Inhalation: 2493 mg/m^3 (acute, systemic), 12.2 mg/m^3 (chronic systemic)
Dermal: 1526 mg/m^3 (acute, systemic), 3.47 mg/m^3 (chronic systemic)
General population
Derived No-Effect Level (DNEL):
Inhalation: 1772 mg/m^3 (acute, systemic), 3.63 mg/m^3 (chronic systemic)
Dermal: 727 mg/m^3 (acute, systemic), 2.08 mg/m^3 (chronic systemic)
Biological limit values: None established
Engineering Controls:
Ventilation: Use outdoors or in a well-ventilated area.
Personal Protective Equipment:
Respiratory Protection: Respiratory protection may be necessary under certain use conditions. Under such conditions, an approved half-face or full-face respirator according to local standards, must be worn.

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Eye Protection: Wear safety goggles, safety glasses with side shields, or full face shield.
Skin/ Body Protection: Wear chemical resistant gloves (neoprene, nitrile or equivalent), waterproof boots, protective clothing, e.g. overalls with long sleeves buttoned at neck and wrist, long pants).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow viscous liquid
Odour	Not specified
Odour threshold	Not determined
pH	7.5 – 7.7 at solubility limit in water
Freezing point ^{0}C	<-12^{0}C
Boiling Point/Range ^{0}C	325^{0}C (oligomerisation products of beta-pinene)
Flash Point ^{0}C	> 100 ^{0}C
Flammability (solid, gas)	Not applicable
Upper/lower flammability/explosive limits	Not known
Vapour Pressure	0.0212 Pa @ 25 ^{0}C
Relative density	0.918 – 0.93 g/ml @ 20^{0}C
Solubilities	8.84e-04 g/L @20^{0}C in water (oligomerisation products of beta-pinene)
Partition coefficient: n-octanol/water	>6.5 @30^{0}C (oligomerisation products of beta-pinene)
Autoignition Temperature ^{0}C	268^{0}C
Decomposition Temperature ^{0}C	Not determined
Kinematic viscosity	400 – 900 cps @ 23^{0}C
Particle characteristics	Not applicable
Percent volatile	Not determined

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions.
Conditions to avoid: None known.
Hazardous decomposition products: Not specified.
Hazardous reactions: Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicity classifications determined by study, or assessment of the components in the formulated mixture.
Acute toxicity: Not classified.
Aspiration hazard: Not classified.
Respiratory irritation: Not classified.
Skin corrosion/irritation: Irritating to skin (in rabbit study following EPA OPP 81-5 methodology).
Serious eye damage/irritation: Non-irritating (in rabbit study following EPA OPP 81-4 methodology).
Respiratory or skin sensitization: Di-1-*p*-menthene is classified as a contact sensitizer when prolonged or repeated exposure. Product did not cause contact sensitisation in Guinea pigs (OECD 406 Enhanced Buehler test) or human volunteers (Closed Patch Test in 53 volunteers: oligomerisation products of beta-pinene tested). Positive in Guinea Pig maximisation test (EU Method B.6), which used intradermal injection and adjuvant (immune system stimulant). Risk of dermal sensitisation for man therefore uncertain, but classified as sensitising.

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Germ cell mutagenicity: Not classified. Negative in vitro (Ames test, OECD 471 and cytogenetic test, OECD 473). Negative in vivo (mouse micronucleus test, EU Method B.12 and rat liver UDS test, OECD486).
Carcinogenicity: Not classified.
Reproductive toxicity: Not classified.
Specific organ toxicity: Not classified. Acute studies revealed no toxic effects at doses up to 16000 mg/kg in rats. In a 4-week rat study, no toxic effects were observed at 1000 mg/kg (rats, OECD guideline 407).
Narcotic effects: Not classified.
Toxicological Information:
Formulated product - Oral, rat, LD_{50} >16,000 mg/kg (OECD 401 study)
Inhalation, rat, LC_{50} (4 hr) >4.43 mg/L (OECD 403 study)
Dermal, rabbit, LD_{50} >4000 g/kg (OECD 402 study)

12. ECOLOGICAL INFORMATION

Ecotoxicity: This mixture is classified as very toxic to aquatic life and with long-lasting effects. Do not contaminate waterways, sewers, or drains when using product, or disposing of product or wash water from equipment.
Persistence and degradability: Not readily biodegradable: 8% degradation over 28 days in OECD 301D Closed Bottle test. Not rapidly biodegraded in a test for inherent biodegradability (3% degradation over 28 days, OECD 301B method using acclimated, mixed soil/sludge inoculum). Slow biodegradation predicted, based on chemical analogy to ubiquitous phytoterpenes.
Potential to be bioaccumulative: Not determined experimentally. QSAR calculations of BCF based on chemical structure and physical properties give BCF values of 175 (based on QSAR-estimated log Kow, 9.29) and 6295 (based on log Kow 6.5). BCF indicator for bioaccumulation is concluded to be >2000 but <5000.
Mobility in soil: Insoluble in water. Koc: >28,840. Log K_{OC} >4.46. Oligomerisation products of beta-pinene are expected to bind strongly to organic matter.
Other adverse effects: Oligomerisation products of beta-pinene are not considered to be persistent, bioaccumulating or toxic (neither PBT or vPvB).

Ecotoxicological Information:
Acute toxicity to fish:
- *Oncorhynchus mykiss,* (OECD guideline 203) 96h LC50: 5.7 mg/l
- *Oncorhynchus mykiss*, (OECD guideline 203) 96h LC50: 7.5 mg/l
- *Oncorhynchus mykiss*, (OECD guideline 203) 96h LC50: > 6.5 mg/l

Acute toxicity to aquatic invertebrates:
- *Daphnia magna*, (OECD guideline 202) 48h EC50: 0.26 mg/l
- *Daphnia magna*, (EU Method C.2) 48h EC50: ≥ 2.16 - ≤ 9.74 mg/l

Toxicity to algae:
- *Pseudokirchnerella subcapitata*, (OECD guideline 201) 72h ErC50: 0.24 mg/l, 72h EbC50: 0.18 mg/l, 72h NOEC: 0.1 mg/l.

Toxicity to bacteria:
- Activated sludge (growth inhibition), (OECD guideline 209) EC50: >100 mg/l

Chronic toxicity to aquatic invertebrates:
- *Daphnia magna*, 21d NOEC: 0.12 mg/l (read-across to close chemical analogue)
- *Daphnia magna*, 21d NOEC: 0.27 mg/l (read-across to close chemical analogue)

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Aqueous spray application onto water surface (giving nominal test water concentrations 10.7 mg/l Daphnia, 25 mg/l fish) at approximately 1 g/sq.m water surface caused no evident toxicity in fish. In Daphnia physical entrapment and a maximum of 40% immobilisation was observed.

Toxicity to soil macroorganisms except arthropods:

- *Eisenia fetida*, 14d LC50: > 1000 mg/kg

Toxicity to honeybees:

- *Apis mellifera* 48h LD50: > 200 µg per animal (for both ingestion and direct contact)

Toxicity to terrestrial plants:

- No adverse effects were observed after spray application of the substance to orange trees, grapevines and cereal crops (wheat and barley).

Environmental Exposure Limits (EEL's): Not set.

Other Information:

Predicted No-Effect Concentration (PNEC) values:

$PNEC_{Freshwater}$: 2 µg/l

$PNEC_{Intermittent}$: 2.4 µg/l

$PNEC_{STP}$: 1000 µg/l

$PNEC_{Freshwater\ Sediment}$: 1.26 mg/kg dw

$PNEC_{Soil}$: 1 mg/kg dw

$PNEC_{Oral}$: 33.3 mg/kg

13. DISPOSAL CONSIDERATIONS

Disposal Methods: Ensure container is empty before disposal to landfill. Triple rinse with water. Use rinsings in preparing the diluted solution.

Waste should be disposed of to an approved waste disposal facility or by burying at an approved site. Do not burn product or containers.

Ensure disposal of containers and product is in compliance with requirements of national and local authorities.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN No.	3082	UN No.	3082	UN No.	3082
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS LIQUID, N.O.S. (OLIGOMERISATION PRODUCTS OF BETA-PINENE)	Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS LIQUID, N.O.S. (OLIGOMERISATION PRODUCTS OF BETA-PINENE)	Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS LIQUID, N.O.S. (OLIGOMERISATION PRODUCTS OF BETA-PINENE)
DG Class	9	DG Class	9	DG Class	9
Sub. Risk		Sub. Risk		Sub. Risk	
Pack Group	III	Pack Group	III	Pack Group	III
Hazchem	3Z	Hazchem	3Z		

Marine Pollutant: Yes

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Dangerous Goods Segregation

This product is classified as a Dangerous Good Class for Transport.
Please consult the Land Transport Rule: Dangerous Goods 2005, and NZS 5433:2020 Transport of Dangerous Goods on Land for information.

The maximum quantity per package permitted on a passenger service vehicle is 1L.

15. REGULATORY INFORMATION

HSNO Act 1996

Approval Code:	HSR002503 Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2020.
Classifications:	Skin irritation Category 2, Skin sensitisation Category 1, Hazardous to the aquatic environment acute Category 1, Hazardous to the aquatic environment chronic Category 1.
Controls:	Refer to www.epa.govt.nz for information on Controls and www.worksafe.govt.nz for further information on compliance.

Additional label statement requirements:

Applicable to agricultural compounds.
Take all reasonable steps to ensure that the substance does not cause any significant adverse effects to the environment beyond the application area.
Do not apply directly into or onto water.

ACVM Act 1997

Registration Number: Not required (exempt product).

16. OTHER INFORMATION

Date of issue: 17th March 2023
Reasons for Issue: Update SDS information based on manufacturer provide information.
Replaces: SDS dated 27th January 2023.

Abbreviations:

ACVM	Agricultural Compounds and Veterinary Medicines
EPA	New Zealand Environmental Protection Authority
GHS	Global Harmonised System
HSIS	Hazardous Substance Information System
HSNO	Hazardous Substances and New Organisms
NZIoC	New Zealand Inventory of Chemicals
PNEC	Predicted No-Effect Concentration (PNEC) values:
STEL	Short Term Exposure Limit (15 minute exposure period)
TWA	Time-Weighted Average (8 hours exposure period)
WES	Workplace Exposure Standard

References:

ECHA www.echa.europe.eu/information_on_chemicals
EPA www.epa.govt.nz
Supplier information and SDS dated 18 May 2022.

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Safety Data Sheet: RainGard

Worksafe NZ www.worksafe.govt.nz

Other:

Raingard is a trademark of Key Industries Ltd.

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the supplier's knowledge. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses, but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product. For further information, please contact Key Industries Limited.