



SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: **Leopard 200 EC Herbicide**
Item Code:
Product Use: Agricultural herbicide for use as described on the product label.
Restriction of Use: Refer to Section 15

New Zealand Supplier: ADAMA New Zealand Ltd
Address: Level 1/93 Bolt Road
Tahunanui, Nelson
Telephone: +64 3 543 8275
Fax Number: +64 3 543 8274

**Emergency Telephone: 0800 764 766 (National Poison Centre)
0800 734 607 (24hr Emergency Response)**

Date of SDS Preparation: 30 July 2021

Section 2. Hazards Identification

This substance is hazardous according to the *Hazardous Substances (Hazard Classification) Notice 2020*

EPA Approval No: HSR101045

Pictograms



Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement
Flammable liquid Category 4	H227	Combustible liquid.
Eye irritation Category 2	H319	Causes serious eye irritation.
Carcinogenicity Category 2	H351	Suspected of causing cancer.
Specific target organ toxicity (repeated exposure) Category 2	H373	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard Category 1	H304	May be fatal if swallowed and enters airways.
Hazardous to the aquatic environment chronic Category 2	H411	Toxic to aquatic life with long lasting effects.
Hazardous to terrestrial vertebrates	H443	Harmful to terrestrial vertebrates.

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use.
P202	Do not handle until all safety precautions have been read and understood.

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P264	Wash hands thoroughly after handling
P273	Avoid unintended release to the environment.
P280	Wear protective clothing. Cotton overalls, over normal clothing, buttoned to the neck and wrist.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P301 + P310 + P331	IF SWALLOWED: DO NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.
P305 + P351+ P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell.
P370 + P378	In case of fire: Use carbon dioxide, dry chemical, foam or water fog for extinction.
P391	Collect spillage.

Storage Code	Storage Statement
P403	Store in a well-ventilated place.
P405	Store locked up.

Disposal Code	Disposal Statement
P501	Wherever possible completely use material by using according to label instructions. Dispose of unwanted product and wastes from spillages as hazardous substances in accordance with local and national regulations using a licensed waste disposal company. Triple rinse containers and add rinsate to spray tank before puncturing and offering for recycling or landfill. Do not allow product to enter waterways. Do not burn product or container.

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Quizalofop-p-ethyl technical	19.2	100646-51-3
Emulsifiers	10-15	Proprietary
Heavy aromatic, naphthalene hydrocarbon solvent	60-70	64742-94-5
Hydrocarbon solvent	5-10	140-11-4
Other Non-Hazardous Ingredients	Balance	NA

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.
If on Skin	Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. If skin irritation or rash occurs: get medical advice/attention.
If Swallowed	DO NOT induce vomiting. Never give anything to the mouth of an unconscious person. If vomiting occurs, place victim face downwards, with the head turned to the side and lower than the hips to prevent vomit entering the lungs. Immediately call a POISON CENTER or doctor/physician.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms:

Inhaled:	Not applicable.
Ingestion:	Not applicable.
Skin:	Not applicable.
Eyes:	Causes serious eye irritation.
Chronic:	May be fatal if swallowed and enters airways. Suspected of causing cancer. May cause damage to organs through repeated or prolonged contact.

Section 5. Fire Fighting Measures

Hazard Type	Combustible. There is little risk of an explosion from this product under normal circumstances if it is involved in a fire.
Hazards from combustion products	Violent steam generation or eruption may occur upon application of direct water stream 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. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.
Suitable Extinguishing media	In case of fire, use carbon dioxide, dry chemical, foam, water fog. Contain spillage. Do not allow to enter waterways.
Precautions for firefighters and special protective clothing	If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is full fire kit and breathing apparatus.
HAZCHEM CODE	3Z

Section 6. Accidental Release Measures

Wear full protective clothing as detailed in Section 8. Evacuate area from unnecessary personnel.

Environmental precautions

Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal. Dispose as per Local Regulations in Section 13.

Section 7. Handling and Storage

Precautions for Handling:

- Read label before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat, sparks, open flames or hot surfaces. No smoking.
- Wash hands thoroughly after handling.
- Avoid unintended release to the environment.
- Use personal protective equipment as required.

Precautions for Storage:

- Store away from incompatible materials listed in Section 10.
- Keep away from children.
- Store locked up
- Store in a well-ventilated place.
- Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

Section 8 Exposure Controls / Personal Protection**WORKPLACE EXPOSURE STANDARDS (provided for guidance only)**

Substance	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Liquid Hydrocarbon	-	790	-	-

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2017 9TH EDITION.

Engineering Controls

This product should only be used in a well-ventilated area. If natural ventilation is inadequate, use of a fan is suggested.

Personal Protection Equipment

Eyes	Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used. Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being handled commercially.
Hands and Skin	Prevent skin contact by wearing impervious gloves, clothes and, preferably, apron. Make sure that all skin areas are covered. We suggest that protective clothing be made from the following materials: Overalls: Cotton overalls, over normal clothing, buttoned to the neck and wrist. Gloves: PVC, Nitrile or rubber.
Respiratory	Usually, no respirator is necessary when using this product.

Section 9 Physical and Chemical Properties

Appearance	Clear amber coloured liquid
Odour	Characteristic
Odour Threshold	Not applicable
pH	Not applicable
Boiling Point	Expected to be low at 100°C.
Melting Point	Liquid at normal temperatures.
Freezing Point	Liquid at normal temperatures.
Flash Point	Not applicable
Flammability	Not applicable
Upper and Lower Exposure Limits	Not applicable
Vapour Pressure	Not applicable
Vapour Density	Not applicable
Specific Gravity	approx. 1.04
Solubilities	Emulsifiable.
Partition Coefficient:	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not applicable
Kinematic Viscosity	Not applicable
Particle Characteristics	Not applicable

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Conditions to Avoid	Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.
Incompatible Materials	Strong oxidising agents.
Hazardous Decomposition Products	Combustion forms carbon dioxide, and if incomplete, carbon monoxide and possibly smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. May form oxides of sulfur (sulfur dioxide is a respiratory hazard) and other sulfur compounds. Most will have a foul odour. May form hydrogen fluoride gas and other compounds of fluorine. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable.
Dermal	Not applicable.
Inhalation	Not applicable.
Eye	Causes serious eye damage.
Skin	Not applicable.

Chronic Effects:

Carcinogenicity	Suspected of causing cancer.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	May be fatal if swallowed and enters airways.
STOT/SE	Not applicable.
STOT/RE	May cause damage to organs through prolonged or repeated exposure.

Toxicity: Acute toxicity: Pure Quizalofop-p-ethyl is harmful by oral exposure. The reported oral LD₅₀ values of the compound are 1210 to 1670 mg/kg in male rats, and 1182 to 1480 mg/kg in female rats. Mice are only slightly less susceptible to the compound. Quizalofop-p-ethyl has reported LD₅₀ values of 1753 to 2350 mg/kg in male mice and 1805 to 2360 mg/kg in female mice. For a formulated product, the reported oral LD₅₀ values are 6600 mg/kg in male rats and 5700 in female rats. Exposure of the skin of rabbits to the compound indicated that the compound is not harmful by this route. The acute percutaneous (absorbed through the skin) LD₅₀ for quizalofop-p-ethyl in mice, rats, and rabbits is greater than 2000 mg/kg. For the formulated product, the reported dermal LD₅₀ in rabbits is greater than 5000 mg/kg. Quizalofop-p-ethyl is slightly to practically nontoxic via inhalation, both in technical form and formulation. Reported 4-hour inhalation LC_{50s} values are 5.8 mg/L for technical quizalofop-p-ethyl and 75 mg/L for formulated product in rats. Quizalofop-p-ethyl is non-irritating to the skin and only slightly irritating to the eyes in rabbits. It is non-sensitizing to the skin of guinea pigs. The formulated product, however, is severely irritating to rabbit eyes.

Chronic toxicity: In a 1-year feeding study on dogs, doses of up to 10 mg/kg/day (the highest dose tested in that study) caused no observed effects. In a 90-day feeding study in rats, doses of 6.4 mg/kg/day and higher produced liver lesions and increased liver weight. In a 2-year study of rats, doses of 5 mg/kg/day produced no observed effects.

Reproductive effects: Data from reproductive studies indicated only decreased body weight gains and did not report findings of impaired reproductive function in test animals. A 6-month study in dogs found atrophy of the seminiferous tubules at doses of 2.5 mg/kg/day but was unclear whether this was extensive enough to result in impaired reproductive function. These data are insufficient to draw conclusions regarding the likely reproductive effects of quizalofop-p-ethyl in animals but suggest that effects on human reproduction are unlikely under normal circumstances.

Teratogenic effects: In a two-generational study in rats, doses of 2.5 mg/kg/day and higher produced increased liver weights in offspring. No teratogenic effects were observed in another study in rats at doses of up to 300 mg/kg/day (the highest doses tested) over an unspecified period, although maternal decreases in body weight, food consumption, and corpora lutea were observed at doses of 100 mg/kg/day. These data suggest that teratogenic or developmental effects are unlikely in humans.

Mutagenic effects: The results of many assays for mutagenicity and genotoxicity of quizalofop-p-ethyl show no mutagenic or genotoxic activity. Quizalofop-p-ethyl was not found to be mutagenic in the Ames assay, either with or without metabolic activation, nor was mutagenic activity seen in Chinese hamster ovary cell culture tests. Assays for chromosome structural aberrations and alterations in DNA damage repair capacity were also negative.

Carcinogenic effects: In an 18-month carcinogenicity study on mice, increased liver weights, changes in blood chemistry, and some changes in liver tissue structure were detected, but no carcinogenic or tumour-causing activity was reported. This study suggests that this compound is not carcinogenic.

Organ toxicity: Available data show that the target organ in test animals has consistently been the liver in rats and dogs. It is possible that testes may be a target organ in some species; e.g. dogs.

Section 12. Ecotoxicological Information

HSNO Classes: Hazardous to the aquatic environment chronic Category 2, Hazardous to terrestrial vertebrates.

Toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Effects on birds: Quizalofop-p-ethyl is practically nontoxic to birds. The reported 8-day feeding (dietary) LC₅₀ is greater than 5000 ppm in bobwhite quail and mallard ducks. The reported LD₅₀ for quizalofop-p-ethyl is greater than 2000 mg/kg in mallard ducks.

Effects on aquatic organisms: Quizalofop-p-ethyl is highly to very highly toxic to fish. Reported 96-hour LC₅₀ values are 10.7 mg/L in rainbow trout and 0.46 to 2.8 mg/L in bluegill sunfish.

Effects on other organisms: Quizalofop-p-ethyl is practically nontoxic to bees, with a 48-hour contact LD₅₀ of greater than 100 mg/bee.

Environmental Fate:

Breakdown in soil and groundwater: Quizalofop-p-ethyl is moderately persistent in soils, with a reported half-life of 60 days. It may be more rapidly broken down in soil with high microbial activity. It is moderately to strongly sorbed to soils, and studies indicate very low soil mobility. It should not leach significantly into water.

Breakdown in water: No data are currently available.

Breakdown in vegetation: No data are available regarding the breakdown of the compound; however, it is absorbed from the leaf surface and translocated throughout the plant. It accumulates in the active growing regions of stems and roots.

Do not allow to enter waterways.

Section 13. Disposal Considerations

Disposal Method: Wherever possible completely use material by using according to label instructions. Dispose of unwanted product and wastes from spillages as hazardous substances in accordance with local and national regulations using a licensed waste disposal company. Triple rinse containers and add rinsate to spray tank before puncturing and offering for recycling or landfill.



Precautions: Do not allow product to enter waterways.

Disposal methods to avoid: Do not burn product or container.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ; NZS 5433

Road and Rail Transport

UN No: 3082
 Class-primary 9
 Packing Group III
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Quizalofop-p-ethyl)

Air Transport

UN No: 3082
 Class-primary 9
 Packing Group III
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Quizalofop-p-ethyl)

Marine Transport

UN No: 3082
 Class-primary 9
 Packing Group III
 Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Quizalofop-p-ethyl)
 Marine Pollutant: YES

Special Provisions:

If the product's individual container is below 5L, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Section 15 Regulatory Information

This substance is hazardous according to the ***Hazardous Substances (Hazard Classification) Notice 2020***

EPA Approval Code: HSR101045

HSNO Classification: Flammable liquid Category 4, Eye irritation Category 2, Carcinogenicity Category 2, Specific target organ toxicity (repeated exposure) Category 2, Aspiration hazard Category 1, Hazardous to the aquatic environment chronic Category 2, Hazardous to terrestrial vertebrates.

HSW (HS) Regulations 2017	Trigger Quantity
Certified Handlers	Not required
Location Certificate	Not required
Signage Trigger Quantities (Schedule 3)	1000 L
Fire Extinguishers (Schedule 4)	500 L – 2 extinguishers
Emergency Response Plan (Schedule 5)	1000 L
Secondary Containment (Schedule 5)	1000 L
Tracking (Schedule 26)	Not required
Hazardous Property Controls Notice 2017	
HPC Notice Part 1	Hazardous Property Controls preliminary provisions
HPC Notice Part 3	Hazardous substances in a place other than a workplace
HPC Notice Part 4 Subpart A	Substances that are hazardous to the environment:

	Site and storage controls
HPC Notice Part 4 Subpart B	Use of substances that are hazardous to the environment
HPC Notice Part 4 Clause 47	Equipment for environmentally hazardous substances must be appropriate
HPC Notice Part 4 Clause 52	Agrichemicals that are hazardous to the aquatic environment must not be applied to water
HPC Notice Part 4 Subpart C	Qualifications required for the application of substances that are hazardous to the environment
ACVM Act and Regulations	
ACVM Approval No	P009137
See www.foodsafety.govt.nz for registration conditions.	

Section 16 Other Information

Glossary

ACVM	Agricultural Compounds and Veterinary Medicines Act 1997.
EC50	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority.
HSNO	Hazardous Substances and New Organisms Act 1996.
HSW	Health and Safety at Work Act 2015.
HSW (HS) Regulations	Health and Safety at Work (Hazardous Substances) Regulations 2017.
LC50	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD50	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level.
WES	Workplace Exposure Limit.

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer:

This document has been issued by Adama New Zealand Ltd and serves as their Safety Data Sheet ('SDS'). It is based on information concerning the product which is held by Adama New Zealand Ltd or has been obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. While Adama New Zealand Ltd have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, Adama New Zealand Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS. The information herein is given in good faith, but no warranty, express or implied is made.

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