



SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: **Bromotril Herbicide**
Chemical name of active: 2,6 Dibromo-4-cyanophenyl octanoate
Common Name of Active: Bromoxynil
Product Use: Herbicide
Restriction of Use: Refer to Section 15

New Zealand Supplier: ADAMA New Zealand Ltd
Address: Level 1/93 Bolt Road
Tahunanui, Nelson 7011
Telephone: +64 3 543 8275
Email: nzorders@adama.com

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

Date of SDS Preparation: 7 August 2023

Section 2. Hazards Identification

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

HSNO Approval No: HSR000431

Pictograms



Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement
Flammable liquid Category 3	H226	Flammable liquid and vapour.
Acute oral toxicity Category 4	H302	Harmful if swallowed.
Acute inhalation toxicity Category 4	H332	Harmful if inhaled.
Aspiration hazard Category 1	H304	May be fatal if swallowed and enters airways.
Skin irritation Category 2	H315	Causes skin irritation.
Eye irritation Category 2	H319	Causes serious eye irritation.
Reproductive toxicity Category 2	H361	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity (repeated exposure) Category 2	H373	May cause damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment acute Category 1	H400	Very toxic to aquatic life.
Hazardous to the aquatic environment chronic Category 1	H410	Very toxic to aquatic life with long lasting effects.
Hazardous to soil organisms	H421	Very toxic to the soil environment.
Hazardous to terrestrial vertebrates	H432	Toxic to terrestrial vertebrates.

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
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.
P233	Keep container tightly closed.
P235	Keep cool.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating and lighting.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe fumes, mist, vapours or spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid unintended release into the environment.
P280	Wear protective clothing and equipment as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P301 + P310 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.
P303 + P313 + P332 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/ attention.
P304 + P312 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P313 + P337 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before re-use.
P370 + P378	In case of fire: Use dry chemical, water spray, foam or carbon dioxide 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	Weight %	CAS NUMBER.
Bromoxynil octanoate	4-54	1689-99-2
Alkyoxylated alkyl phenol	1-2	Proprietary
Alklbenzene sulfonate	2-3	Proprietary
Aromatic C-9 solvent (Naphta)	40-45	64742-95-6

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation occurs: Get medical advice/attention.
If on Skin	Wash with plenty of soap and water. Take off contaminated clothing and wash before re-use. If skin irritation occurs: get medical advice/attention.
If Swallowed	Wash out mouth with plenty of water. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to an unconscious person.
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 of:**

Ingestion:	Nausea, headaches, cramps, vomiting
Skin:	Irritating to skin.
Inhalation:	Vapours: Headaches, dizziness, nausea.
Eyes:	Irritating to eyes.
Chronic:	May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

Notes to physician: There is no specific antidote. If poisoning is suspected apply symptomatic therapy.

Section 5. Fire Fighting Measures

Hazard Type	Flammable.
Hazards from combustion products	Bromine compounds, cyanide and nitrogen oxides.
Suitable Extinguishing media	Dry chemical, water spray, foam, carbon dioxide.
Precautions for firefighters and special protective clothing	Self-contained breathing apparatus and total protection required in enclosed areas. Flashback may occur along vapour trail.
HAZCHEM CODE	3Y

Section 6. Accidental Release Measures

Wear full protective clothing as detailed in Section 8. Evacuate area from unnecessary personnel. Keep away from: open flame, sparks and heat.

Environmental precautions

Dispose of this material and its container at hazardous or special waste collection point, in accordance with national and regional regulations. If the product has contaminated surface water, inform the appropriate authorities.

Methods and material for containment and cleaning up

Absorb remainder in sand, vermiculite or other inert material. Dispose of in an authorised waste collecting point like Agrecovery or as per Local Regulations.

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.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical, ventilating and lighting.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe fumes, mist, vapours or spray.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Avoid unintended release into the environment.
- Wear protective clothing and protective equipment detailed in Section 8.

Precautions for Storage:

- Store away from incompatible materials listed in Section 10.
- Keep away from children.
- Store in a well-ventilated place. Keep cool.
- Store locked up.
- Keep only in the original container. Keep dry and away from direct sunlight.
- As a substance with Aquatic Ecotoxicity Classifications, storage of Bromotril Herbicide must be carried out in such a manner as to prevent contamination of waterways. It is recommended that The New Zealand Standard for the Management of Agrichemicals (NZS8409) is followed.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³

None of the ingredients have workplace exposure limits listed on WES.

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.

Engineering Controls

Ensure adequate ventilation is available.

Personal Protection Equipment



Eyes	Safety goggles or face shield. Avoid wearing contact lenses.
Hands and Skin	Chemical resistant gloves. Wear suitable protective clothing. Chemical resistant boots.
Respiratory	Respiratory protection is required.
General	When handling, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash clothing separately before re-use.

Section 9 Physical and Chemical Properties

Appearance	Brown Emulsion
Odour	Aromatic
Odour Threshold	Not applicable
pH	3 – 5 CIPAC, MT 75
Boiling Point	155-181°C (Naphta)
Freezing/Melting Point	Not applicable
Flash Point	45 °C (Naphta)
Flammability	Flammable
Upper and Lower Exposure Limits	0.8% - 7%
Explosive properties	Naphtha (vapours) may form explosive mixture with air.
Vapour Pressure	0.2 mPa @ 25°C (Bromoxynil octanoate)
Density	1.132 +/- 0.010 g/mL @ 20°C
Specific Gravity	1.22-1.23
Solubility in water	3 ppm @ 25 °C (Bromoxynil octanoate)
Partition Coefficient:	Not applicable
Auto-ignition Temperature	Not applicable
Viscosity, dynamic	Not applicable
Particle Characteristics	Not applicable
Octanol/water partition coefficient	log P = 5.4 (Bromoxynil octanoate)

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Conditions to Avoid	Sources of ignition.
Incompatible Materials	Oxidizing agents, acids, alkali and steel.
Hazardous Decomposition Products	Bromine compounds, cyanide and nitrogen oxides.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Harmful if swallowed. May be fatal if swallowed and enters airways
Dermal	Not applicable.
Inhalation	Harmful if inhaled.
Eye	Causes serious eye irritation.
Skin	Causes skin irritation.

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	May damage fertility or the unborn child.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	May cause damage to organs through prolonged or repeated exposure.

Preparation

Acute toxicity - Oral:	LD50 (rat) = 552 mg/kg
Acute toxicity - Dermal:	LD50 (rabbit) > 4,000 mg/kg
Acute toxicity - Inhalation:	LC50 (rat-male) ~ 4.34 mg/L (4 hours)
Skin irritation:	Moderately irritating (rabbit).
Eye irritation:	Moderately irritating (rabbit).
Sensitization:	Non sensitizer (guinea pig).
Reproduction toxicity:	Repr. Cat 3
Other information:	Teratogenicity - NOAEL (rat): 10-50 mg/kg/day. (Maternal and Fetal)

Section 12. Ecotoxicological Information

Persistence and degradability	No data available
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	No data available

Common name:**Bromoxynil octanoate****Mobility:****Soil**

Bromoxynil octanoate – low mobility.
 Bromoxynil (ISO) – Low mobility
 $K_{oc} = 639 \text{ mL/g}$
 No risk of underground water contamination

Persistence/degradability: Soil

The product is not persistent.
 Half-life time ($t_{1/2}$): = 8 days
 Degradation is primarily via: hydrolysis and microorganisms.
 The product is readily biodegradable.

Water

DT_{50} : (water) = 34.1 days (pH5)
 DT_{50} : (water) = 11.7 days (pH7)
 DT_{50} : (water) = 1.7 days (pH9)
 DT_{50} : (water/sediment) < 3 days

Bioaccumulative potential: BCF: 239**Ecotoxicity:****Fish**

LC ₅₀ (96 hours)	rainbow trout (<i>oncorhynchus mykiss</i>)	= 0.041mg/L
	bluegill sunfish (<i>lepomis macrochirus</i>)	= 0.061 mg/L
NOEC (36 days)	fathead minnow	= 0.0034 mg/L

Daphnia magna

EC₅₀ (48 hours) = 0.046 mg/L

NOEC (21 days) = 0.0025 mg/L

Algae (navicula pelliculosa)

EC₅₀ (120 hours) = 0.043 mg/L

Birds

Bobwhite quail (anas platyrhynchos) LD₅₀ = 170 mg/kg

Mallard duck (colinus virginianus) LD₅₀ = 2,350 mg/kg

Bobwhite quail (anas platyrhynchos) LC₅₀(5 day feeding) = 1,315 ppm

Bees

Oral LD₅₀ (48 hours) > 120 µg /bee

Contact LD₅₀ (48 hours) > 100 µg /bee

Low toxicity: birds, Non-toxic: Bees

Section 13. Disposal Considerations

Disposal Method: Dispose of this product only by using according to the label or at an approved landfill.

Container Disposal: Triple rinse container and add rinsate to spray tank. Empty containers and product should not be burnt. Dispose of container in a suitable landfill or take to an Agrecovery collection site. Do not use container for any other purpose.



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: 1268

Class-primary 3

Packing Group III

Proper Shipping Name: PETROLEUM DISTILLATE, N.O.S. (NAPHTA)

Air Transport

UN No: 1268

Class-primary 3

Packing Group III

Proper Shipping Name: PETROLEUM DISTILLATE, N.O.S. (NAPHTA)

Marine Transport

UN No: 1268

Class-primary 3

Packing Group III

Proper Shipping Name: PETROLEUM DISTILLATE, N.O.S. (NAPHTA)

Special Provisions:

If the product's individual container is below 5L/kg, 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

HSNO Approval Code: HSR000431

HSNO Classification: Flammable liquid Category 3, Acute oral toxicity Category 4, Acute inhalation toxicity Category 4, Aspiration hazard Category 1, Skin irritation Category 2, Eye irritation Category 2, Reproductive toxicity Category 2, Specific target organ toxicity (repeated exposure) Category 2, Hazardous to the aquatic environment acute Category 1, Hazardous to the aquatic environment chronic Category 1, Hazardous to soil organisms, Hazardous to terrestrial vertebrates.

HSW (HS) Regulations 2017 and EPA Notices	Trigger Quantity
Certified Handler	Not required
Location Certificate	500L (>5L), 1500L(<5L), 250L open
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	100 L
Fire Extinguishers	500 L (2 extinguishers required)
Emergency Response Plan	100 L
Secondary Containment	100 L
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 48	Record of application of agrichemicals
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
HPC Notice Part 4 Subpart C	Qualifications required for application of environmentally hazardous substances agrichemicals.
ACVM Act and Regulations	
Registered pursuant to the ACVM Act 1997, See www.foodsafety.govt.nz for registration conditions	No. P7243
For all further controls	Refer to EPA website (www.epa.govt.nz) for controls document - HSR000431

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
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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