SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product:	**Iotril Herbicide**
Chemical name of active Ing:	4-cyano-2,6 diiodophenyl octanoate
Product Use:	Herbicide: For control of broadleaved weeds in garlic and onions.
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
Email:	nzorders@adama.com
Emergency Telephone:	**0800 764 766 (National Poison Centre)** **0800 734 607 (24hr Emergency Response)**
Date of SDS Preparation:	19 September 2023

Section 2. Hazards Identification

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

HSNO Approval No: HSR000524

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 dermal toxicity Category 3	H311	Toxic in contact with skin.
Skin irritation Category 2	H315	Causes skin irritation.
Eye irritation Category 2	H319	Causes serious eye irritation.
Skin sensitisation Category 1	H317	May cause an allergic skin reaction.
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 terrestrial vertebrates	H433	Harmful 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, sparks, open flames or hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/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.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid unintended release into the environment.
P280	Wear protective clothing and use personal protective equipment as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P301 + P312 + P330	IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
P303 + P312 + P353 + P361	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a POISON CENTER or doctor/physician if you feel unwell.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P305 + P313 + P337 + P338 + P351	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 otherwise exposed or concerned: Get medical advice/ attention.
P361 + P363	Remove/Take off immediately all contaminated clothing and wash before reuse.
P363	Wash contaminated clothing before reuse.
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 + P235	Store in a well-ventilated place. Keep cool.
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.
Ioxynil octanoate	29-33	3861-47-0
Xylene	56-61	1330-20-7

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for 15 minutes. 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.
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	Wash out mouth thoroughly with water. 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. Seek medical attention if needed.
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:	Vapours: Headaches, dizziness, nausea.
Ingestion:	Harmful if swallowed. Nausea, headaches, cramps, vomiting
Skin.	Toxic if in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
Eyes:	Causes serious eye irritation.
Chronic:	Suspected of damaging fertility or the unborn child. May cause damage to organs through repeated or prolonged contact.

Section 5. Fire Fighting Measures

Hazard Type	Flammable liquid.
Hazards from combustion products	Iodide 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

Prevent further leakage or spillage if safe to do so. Do not allow into any sewer, on the ground or into any body of water. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Absorb remainder in sand or other inert material. Dispose of according to Section 13.

Section 7. Handling and Storage

Precautions for Handling:

- 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/lighting.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe fumes, mist, vapours or spray.
- Ventilation required.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Contaminated work clothing should not be allowed out of the workplace.
- Avoid unintended release into the environment.
- Wear protective clothing and use personal protective equipment as 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 in the original, unopened container in a cool, dry place, out of direct sunlight and away from stockfeed or foodstuffs and under lock and key.
- As a substance with Aquatic Ecotoxicity Classifications, storage of Iotril 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 ppm	TWA mg/m3	STEL ppm	STEL mg/m3
Xylene (o-, m-, p-isomers) [1330-20-7]	50	217		

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
Ventilation required.

Personal Protection Equipment

Eyes	Safety goggles or face shield.
Hands and Skin	Wear chemical resistant gloves and suitable protective clothing with chemical resistant boots.
Respiratory	Respiratory protection is not required if good ventilation is maintained.
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 liquid
Odour	Aromatic (solvent)
Odour Threshold	Not applicable
pH	3.5 - 5
Boiling Point	155-181°C
Melting Point	Not applicable
Flash Point	31°C (Xylene)
Flammability	Flammable
Explosive properties	Xylene (vapours) may form explosive mixture with air.
Upper and Lower Exposure Limits	1 – 7% volume
Vapour Pressure	<0.9e-4mPa @ 45°C (Ioxynil octanoate)
Vapour Density (air=1)	Not applicable
Density	1.04 +/-0.002 g/mL @ 20°C
Specific Gravity	Not applicable
Solubilities	Miscible
Auto ignition temp	450°C (Xylene)
Viscosity:	Not applicable
Surface tension:	Not applicable
Octanol/water partition	log P = 6.12 (Ioxynil octanoate)

Section 10. Stability and Reactivity

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

Section 11 Toxicological Information

Acute Effects:

Swallowed	Harmful if swallowed. LD_{50} (rat) ~1,000mg/kg
Dermal	Toxic if in contact with skin.
Inhalation	Not triggered. LC_{50} (rat)~ 4.36 mg/L (4 hours)
Eye	Causes serious eye irritation.
Skin	Causes skin irritation. May cause an allergic skin reaction.

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Suspected of damaging 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 repeated or prolonged exposure.

Individual component information:

Acute Toxicity:

Chemical Name	Oral – LD50	Dermal – LD50	Inhalation – LC50
Xylene (133020-7)	1590 mg/kg (mouse)	-	27.6mg/l (rat) (vapour)

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: **Ioxynil octanoate**

Mobility: **Soil** – not mobile
No risk of underground water contamination

Persistence/ degradability: **Soil**
The product is not persistent.
Half-life time (t½): ~ 10 days
Degradation is primarily via: hydrolysis and microorganisms.
The product is poorly biodegradable.
Water
DT_{50}: (water) = < 6 days (pH 7,9)
DT_{50}: (water/sediment) ~ 3.8 days

Bioaccumulative potential: BCF: = 116 - 120

Ecotoxicity: **Fish**
LC_{50} (96 hours) bluegill sunfish (lepomis macrochirus) = 0.024 mg/L
NOEC (21 days) rainbow trout (oncorhynchus mykiss) = 0.021 mg/L
= 0.0034 mg/L
Daphnia magna
EC_{50} (48 hours) = 0.011 mg/L
NOEC (21 days) = 0.01 mg/L
Algae (scenedesmus subspicatus)
EC_{50} (96 hours) ≥ 10 mg/L
Birds
Pheasants LD_{50} = 1,000 mg/kg
Mallard duck (colinus virginianus) LD_{50} = 1,200 mg/kg
Bees
Oral LD_{50} (48 hours) > 4 □g/bee
Contact LD_{50} (48 hours) > 200 □g/bee
Very toxic to aquatic organisms. Low toxicity: birds, Non toxic: Bees

Do not allow to enter waterways.

Section 13. Disposal Considerations

Disposal Method: Triple rinse empty container and add rinsate to the spray tank. If recycling, discard cap and deliver clean container to an Agrecovery depot. Alternatively crush and bury in a suitable landfill. Dispose of product only by using according to the label, or at an approved landfill.

Precautions: Do not allow product to enter waterways.

Disposal methods to avoid: Do not allow product to enter waterways. 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:	1993
Class-primary	3
Packing Group	III
Proper Shipping Name:	FLAMMABLE LIQUID N.O.S. (Xylene)

Air Transport

UN No:	1993
Class-primary	3
Packing Group	III
Proper Shipping Name:	FLAMMABLE LIQUID N.O.S. (Xylene)

Marine Transport

UN No:	1993
Class-primary	3
Packing Group	III
Proper Shipping Name:	FLAMMABLE LIQUID N.O.S. (Xylene)
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.

National transport regulations: Do not carry this product on a passenger service vehicle.

Section 15 Regulatory Information

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

HSNO Approval Code: HSR000524

HSNO Classification: Flammable liquid Category 3, Acute oral toxicity Category 4, Acute dermal toxicity Category 3, Skin irritation Category 2, Eye irritation Category 2, Skin sensitisation Category 1, 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 terrestrial vertebrates.

HSW (HS) Regulations 2017	**Trigger Quantity**
Certified Handlers	Not required
Location Certificate	500L (>5L), 1500L (<5L), 250L open
Signage Trigger Quantities (Schedule 3)	100L (9.1A)
Fire Extinguishers (Schedule 4)	500L – 2 extinguishers
Emergency Response Plan (Schedule 5)	100L (9.1A)
Secondary Containment (Schedule 5)	100L (9.1A)
Tracking (Schedule 26)	Not required
Record Keeping	Records of use must be kept under certain circumstances – see The New Zealand Standards for Management of Agrichemicals (NZS8409) for details.
Hazardous Property Controls Notice 2017	
HPC Notice Part 1	Hazardous Property Controls preliminary provisions
HPC Notice Part 2	Certain substances restricted to workplace only.
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
ACVM Act and Regulations	
Registered pursuant to the ACVM Act 1997, See www.foodsafety.govt.nz for registration conditions	P7256

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.
OSHA	American Occupational Safety and Health Administration.
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:

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Issue Date 19 September 2023 Review Date: 19 September 2028