



SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: **Arrow 360**
Chemical name of active: Clethodim
Product Use: Herbicide
Restriction of Use: Refer to Section 15

New Zealand Supplier: ADAMA New Zealand Ltd
Address: Level 1/93 Bolt Road
Tahunanui, 7011, 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: 21 July 2023

Section 2. Hazards Identification

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

HSNO Approval No: HSR100921

Pictograms



Signal Word: **DANGER**

| HSNO Classification | Hazard Code | Hazard Statement |
|---|-------------|--|
| Flammable liquid Category 4 | H227 | Combustible liquid. |
| Skin irritation Category 2 | H315 | Causes skin irritation. |
| Eye irritation Category 2 | H319 | Causes serious eye irritation. |
| 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 3 | H412 | Harmful to aquatic life with long lasting effects. |
| Hazardous to soil organisms | H421 | Very toxic to the soil environment. |
| Hazardous to terrestrial vertebrates | H433 | Harmful to terrestrial vertebrates. |

| Prevention Code | Prevention Statement |
|-----------------|--|
| P102 | Keep out of reach of children. |
| P103 | Read label carefully before use and follow instructions. |

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|------|--|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P260 | Do not breathe dust, fumes, mist or vapours. |
| P264 | Wash hands thoroughly after handling. |
| P273 | Avoid unintended release into the environment. |
| P280 | Wear protective clothing as specified in Section 8. |

| Response Code | Response Statement |
|----------------------------------|--|
| P101 | If medical advice is needed, have product container or label at hand. |
| P301 + P310 + P331 | IF SWALLOWED: IMMEDIATELY call the POISON CENTER or doctor/physician. Do NOT induce vomiting. |
| P302 + P313 + P332 + P352 | IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/ attention. |
| P305 + P313 + P351 + P337 + 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. |
| P312 | Call the POISON CENTER or doctor/physician if you feel unwell. |
| P362 + P364 | Take off contaminated clothing and wash before reuse. |
| P370 + P378 | In case of fire: Use carbon dioxide, dry chemical, foam or water spray (fog) for extinction. |
| P391 | Collect spillage. |

| Storage Code | Storage Statement |
|---------------------|--|
| P403 | Store in a well-ventilated place. |
| | Keep out of reach of children. Do not store near heat or flame. Store in original container tightly closed and in a locked, dry, well-ventilated, cool area away from sources of ignition and foodstuffs. Store in accordance with NZS 8409 Management of Agrichemicals. Stores containing 1000 L are subject to signage, 1000 L of ARROW 360 require secondary containment and more than 1000 L require emergency response plans. Stores containing 500 L of ARROW 360 must have at least 2 fire extinguishers. |

| Disposal Code | Disposal Statement |
|----------------------|---------------------------|
| P501 | Refer to Section 13 |

Section 3. Composition / Information on Ingredients

| Ingredients | Wt% | CAS NUMBER. |
|--------------------|------------|--------------------|
| Clethodim | 30-40 | 99129-21-2 |
| Other ingredients | To 100 | Proprietary |

Section 4. First Aid Measures

Routes of Exposure:

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|--------------|--|
| 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 reuse. If skin irritation: get medical advice/attention. |
| If Swallowed | 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. |
| 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:

| | |
|--------------------|--|
| Ingestion: | May be fatal if swallowed and enters airways. |
| Skin: | Causes skin irritation. |
| Inhalation: | Not applicable. |
| Eyes: | Causes serious eye irritation. |
| Chronic: | May cause damage to organs through prolonged or repeated exposure. |

Section 5. Fire Fighting Measures

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| Hazard Type | Combustible Liquid |
| Hazards from combustion products | Oxides of sulphur, nitrogen and carbon. |
| Suitable Extinguishing media | Carbon dioxide, Dry chemical, Foam, or Water spray (fog). |
| Precautions for firefighters and special protective clothing | Vapours may be toxic. Self-contained breathing apparatus required. Do not allow contaminated run-off to enter drains. |
| HAZCHEM CODE | 2X |

Section 6. Accidental Release Measures

Wear full protective clothing including eye/face protection as detailed in Section 8. Evacuate area from unnecessary personnel.

Contain and absorb liquid spills with inert material and place in waste containers. If spill does enter waterways contact the local authority. Collect in an appropriate sealable container for disposal in an approved landfill. This product is a herbicide and spills can damage crops, pastures and desirable vegetation. Prevent contamination of soil and water.

Dispose of according to Local Regulations.

Section 7. Handling and Storage

Precautions for Handling:

- Read label before use.
- Do not breathe dust, fumes, mist or vapours.
- Wash hands thoroughly after handling.
- Avoid unintended release into the environment.
- Wear protective clothing.

Precautions for Storage:

- Store away from incompatible materials listed in Section 10.
- Keep away from children.
- Store in a cool, dry, well-ventilated place in the original container.
- Protect from excessive heat and cold.
- Do not store near food, drink, animal feeding stuffs, pharmaceuticals, cosmetics or fertilisers.
- As a substance with Aquatic Ecotoxicity Classifications, storage of Arrow 360 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.
- Storage duration: 24 Months

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

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

No ingredients have exposure limits.

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

Handle in well ventilated areas, generally natural ventilation is adequate.

Personal Protection Equipment

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|-----------------------|---|
| Eyes | When opening the container, preparing spray and using the prepared spray wear protective glasses or goggles with shield shields must be worn. |
| Hands and Skin | When opening the container, preparing spray and using the prepared spray wear waterproof gloves, cotton overalls buttoned to the neck and wrist, and boots. |
| Respiratory | Respiratory protection is recommended. |
| General | 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. Wash splashes of concentrate from skin immediately. |

Section 9 Physical and Chemical Properties

| | |
|--|----------------|
| Appearance | Amber liquid |
| Odour | Aromatic |
| Odour Threshold | Not applicable |
| pH | 5.0 – 7.0 |
| Boiling Point | Not applicable |
| Melting Point | Not applicable |
| Flash Point | 63°C |
| Flammability | Not applicable |
| Upper and Lower Exposure Limits | Not applicable |
| Vapour Pressure | Not applicable |
| Density | 1,035 g/ml |
| Relative Density | Not applicable |
| Solubilities | Not known |
| Partition Coefficient: | Not applicable |
| Auto-ignition Temperature | Not applicable |
| Viscosity, dynamic | Not applicable |
| Particle Characteristics | Not applicable |

Section 10. Stability and Reactivity

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| Stability of Substance | Stable under normal storage conditions in original container for at least two years. |
| Conditions to Avoid | Protect from excessive heat and cold. |
| Incompatible Materials | Compatible with most herbicides except very strong acid/alkaline formulations. |
| Hazardous Decomposition Products | Oxides of sulphur, nitrogen and carbon. |

Section 11 Toxicological Information

Acute Effects:

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

Chronic Effects:

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

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 |

Clethodim is of low persistence in most soils with a reported half-life of approximately 3 days. Breakdown is mainly by aerobic processes, although photolysis may make some contribution.

Ecotoxicity:

| | |
|------------------------------|--------------------------------|
| LC50 for Rainbow trout: | 19 mg/L for clethodim (96h) |
| EC50 for Daphnia: | 20.2 mg/L for clethodim (48h) |
| LD50 for bobwhite quail: | oral >2000 mg/kg for clethodim |
| LD50 (contact) for honeybee: | >100 µg/bee for clethodim |

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 **NOT** classified as a Dangerous Good for transport in NZ; NZS 5433

Section 15 Regulatory Information

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

HSNO Approval Code: HSR100921

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

| HSW (HS) Regulations 2017 and EPA Notices | Trigger Quantity |
|--|--|
| Certified Handlers | Not required |
| Location Certificate | Not required |
| Tracking Trigger Quantities | Not required |
| Signage Trigger Quantities | 1000 L |
| Emergency Response Plan | 1000 L |
| Secondary Containment | 1000 L |
| HSNO Additional Controls (Restrictions of use) | |
| 77A | The application of the substance must be limited to ground-based application methods only. [Where ground-based methods applying pesticides include, but are not limited to, application by ground boon, airblast or knapsack, and do not include aerial application methods. |
| 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 |
| ACVM Act and Regulations | |
| Registered pursuant to the ACVM Act 1997, See www.nzfsa.govt.nz/acvm for registration conditions | No. P009274 |
| For all further controls | Refer to EPA website (www.epa.govt.nz) for controls document - HSR100921 |

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:

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