


1: Identification of the Substance and Supplier

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| Product Name | ALIGN |
| Recommended Use | Plant Growth Regulator |
| Company Details | Orion AgriScience Ltd Unit 1, 15 Sir Gil Simpson Drive, Harewood, Christchurch, 8053 PO Box 39 071, Harewood, Christchurch, 8545 |
| Web Address | www.orionagriscience.co.nz |
| Email Address | orders@orionagriscience.co.nz |
| Telephone Number | (03) 928 2386 (office hours), 0800 674 6627 (free phone) |
| Emergency Telephone | 0800 CHEMCALL (0800 243 622) (24 hours) |
| National Poison Centre | 0800 POISON (0800 764 766) (24 hours) |
| Date of Issue/Revision | January 2016 |

2: Hazards Identification

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| Hazard Pictograms |  |
| Priority Identifiers: | Toxic, Corrosive, Ecotoxic, Keep Out of Reach of Children |
| HSNO Classes: | Secondary Identifiers: |
| 6.1D | May be harmful if swallowed, inhaled or absorbed through the skin |
| 6.9B | May cause organ damage from repeated ingestion at high doses |
| 8.1A | Corrosive to aluminium |
| 9.1C | Harmful to aquatic organisms |
| 9.2B | Toxic to some plant species |
| 9.3B | Toxic to terrestrial vertebrates |

3: Composition/ Information on Ingredients

| Ingredient | CAS No | Content (% w/v) |
|--|-------------|-----------------|
| Mepiquat chloride (active ingredient) | 24307-26-4 | 30 |
| Chlorethephon (active ingredient) | 16672-87-0 | 15 |
| Acetic acid | 64-19-7 | 1.4 |
| Other ingredients, surfactants, water, etc | Proprietary | Remainder |

4: First Aid Measures

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| Skin Contact | In case of contact, immediately wash affected area with soap and water. Wash contaminated clothing before reuse. Seek medical advice if irritation persists. |
| Eye Contact | Hold eyes open and rinse with water for at least 15 minutes. Remove contact lenses if easy to do so. Seek medical advice immediately. |
| Ingestion | Do not induce vomiting. Seek medical advice immediately. |
| Inhalation | Immediately move to fresh air and rest. Maintain half upright position if breathing is difficult. Seek medical advice immediately. |
| Workplace Facilities | Hand wash facility. Eye wash facility. |
| Advice to Doctor | No specific antidote. Treat symptomatically. |
| National Poison Centre | 0800 POISON (0800 764 766) (24 hours) |

5: Fire-Fighting Measures

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| Fire/Explosion Hazard | Non-flammable |
| HAZCHEM Code | 2Z |
| ERP Guide No | 36 |
| Extinguishing Media | Water spray, foam, dry chemical or CO2. Avoid water jet. |
| Fire Fighting Instructions | During a fire, toxic fumes may be emitted. Wear self-contained breathing apparatus. Contain runoff. |

6: Accidental Release Measures

Caution: Floors may be slippery if wet. When dealing with spills wear personal protective clothing and equipment as described in section 8. Prevent further spillage or leakage. Keep bystanders away. Absorb spillage with inert material such as spill kit, sand or cat litter. Collect and place in a sealable container for disposal. Wash down affected area with water and detergent. Absorb and collect washings for disposal. Dispose of safely to a suitable landfill

7: Storage, Handling and Use

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| Storage | Keep out of reach of children. Store in the original, tightly closed container, in a secure area away from feed or foodstuffs. |
| Handling and Use | Keep out of reach of children. Avoid contact with eyes and skin. Avoid inhalation of spray mist. When mixing or applying, wear protective clothing as described in section 8. Do not eat, drink or smoke while using. Wash hands and face after use. Wash protective clothing after use. |
| Approved Handler | Not required. |
| Tracking | Not required. |
| Record Keeping | Not required. |
| REI | Until spray has dried |
| Site Requirements under the HSNO Act 1996 and HSNO Regulations: | <ul style="list-style-type: none"> • A location test certificate is not required • A hazardous atmosphere zone is not required • Fire extinguishers are not required • Signage is required for 1000 litres or more • Emergency information is required for 1 litre or more • An emergency plan is required for more than 1000 litres • Secondary containment is required for more than 1000 litres. • Separation/Segregation from incompatible substances (classes 1, 4.3, 5) is required. |
| Additional Requirements | All aspects of storage, handling, use, disposal and record keeping must be in accordance with NZS 8409:2004 'Management of Agrichemicals', and relevant local and regional council plans. |

8: Exposure Control / Personal Protection

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| Tolerable Exposure Limit | None established. |
| Workplace Exposure Standards | Product – None established (Use lowest practicable level). Active ingredient – None established (Use lowest practicable level). Excipients – None established (Use lowest practicable level). |
| Engineering Controls | Not practicable given nature of use. |
| Personal Protection: | |
| Eye | Safety glasses/goggles (or full face respirator incorporating visor) when mixing or applying. |
| Skin | Cotton overalls snugly fitting at the neck, wrist and ankle, boots and waterproof gloves. |
| Respiratory | Not required where spray mist is not inhaled. Otherwise, respirator (organic vapour and particulate matter) is required |

9: Physical and Chemical Properties

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| Appearance | Amber coloured liquid |
| Odour | Odourless |
| Boiling Point | >100°C |
| Flash Point | Will not flash |
| Auto ignition Temperature | Not applicable |
| Explosive Limits | Not applicable |
| Density | 1.09 g/mL (approx) |
| Vapour Pressure | Not volatile |
| Vapour Density | Not volatile |
| Solubility in Water | Soluble |
| pH | 0.8 (approx) |
| Oxidising Properties | Not an oxidizer |
| Corrosive Properties | Corrosive to metals |

10: Stability and Reactivity

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| Stability | Stable under normal conditions. |
| Incompatibility | Avoid mixing with alkalis. Concentrate is corrosive to unprotected metals. |
| Decomposition | Decomposition will not occur under normal conditions. |
| Dangerous Reactions | Products arising from combustion or thermal decomposition may be toxic, corrosive or flammable. |

11: Toxicological Information

This section describes effects which could occur if this material is not handled in accordance with this data sheet.

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| Swallowed | Harmful. Indigestion, diarrhea, urinary urgency |
| Eye | May cause irritation |
| Skin | May cause irritation |
| Inhalation | Harmful |

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| Acute Toxicity (Active Ingredient) | Mepiquat chloride <ul style="list-style-type: none"> Acute Oral LD50 (Rat) 464 mg/kg Acute Percutaneous LD50 (Rat) >2000 mg/kg Inhalation LC50 (7 hr) (Rat) >3.2 mg/l |
| | Chlorethepon <ul style="list-style-type: none"> Acute Oral LD50 (Rat) 3030 mg/kg Acute Dermal LD50 (Rabbit) 1560 mg/kg Inhalation LC50 (4 hr) (Rat) >6.3 mg/l |
| Sensitisation Effects | None |
| Mutagenic Effects | None |
| Carcinogenic Effects | None |
| Reproductive Effects | None |
| Teratogenic (Birth) Effects | None |
| Systemic Effects | Long term animal feeding studies on the active ingredients have found various effects at higher feeding levels including sedation and tonicoclonic spasms (convulsive contraction of muscles), decreased food intake and body weights, decreased haemoglobin and red blood cell, and increased hematocrit (red blood cell proportion) and reticulocytes (immature red blood cells) (mepiquat chloride); and decrease in red blood cell and plasma cholinesterase activity (chlorethepon). Long term ingestion of acetic acid may lead to digestive disorders. |

12: Ecotoxicity Information

This section describes effects which could occur if this material is not handled in accordance with this data sheet.

The following information is presented in respect of the active ingredient:

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| Ecotoxic Effects | Mepiquat chloride <ul style="list-style-type: none"> Acute Oral LD50 (Bobwhite quail) >2000 mg/kg LC50 (96 hr) (Rainbow trout) 4300 mg/l LC50 (48 hr) (Daphnia) 68.5 mg/l EC50 (72 hr) (Algae) >1000 mg/l Non - toxic to bees. |
| | Chlorethepon <ul style="list-style-type: none"> Acute Oral LD50 (Bobwhite quail) 1072 mg/kg LC50 (96 hr) (Rainbow trout) 720 mg/l LC50 (48 hr) (Daphnia) 577 mg/l EC50 (24 - 48 hr) (Algae) 32 mg/l Non - toxic to bees. |
| Environmental Fate | Biodegradable. DT50 (soil) 10 days (typical) |
| Partition Co-Efficient (Kow) | <ul style="list-style-type: none"> LogP = -2.82 (low) (Mepiquat chloride) LogP = -0.22 (low) (Chlorethepon) |
| Environmental Exposure Limit: | None established. |

13: Disposal Considerations

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| Product | Dispose of product by using it in accordance with the label. Do not burn. Waste product should be disposed of to a suitable landfill. For disposal of large quantities contact Orion AgriScience Ltd. |
| Container | Dispose of to a suitable landfill or agricultural recycling scheme. Do not burn. Do not use packaging for any other purpose. |

14: Transport Information

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| Dangerous Goods | |
| UN Number | 3265 |
| Proper Shipping Name | CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CHLORETHEPON 15%) |
| Class | 8 |
| Subsidiary Class | None |
| Packing Group | III |
| Additional Information | Corrosive to aluminium |

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| MTQ (Non-Commercial) | 250 litres |
| Passenger Service Vehicle: | Maximum quantity 10 litres |

15: Regulatory

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| HSNO Approval No | HSR000806 |
| ACVM Registration No | P5989 |

16: Other Information

| Glossary | |
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| Approved Handler | For some hazardous substances, persons storing, handling and using must be trained and certified |
| DT50 | Time (days) for 50% reduction in concentration |
| EC50 | Concentration required to produce an effect in 50% of organisms |
| Environmental Exposure Limit | Maximum concentration limit of a substance in an environmental medium, e.g., water, soil. |
| ERP Guide | Dangerous Goods – Initial Emergency Response Guide SNZ HB 76:2008 |
| HAZCHEM Code | Emergency action code for emergency services |
| HSNO | Hazardous Substances and New Organisms |
| LC50 | Concentration that will kill 50% of organisms |
| LD50 | Dose that will kill 50% or organisms |
| MTQ | Maximum Transport Quantity. The maximum amount of dangerous goods that can be transported by road by the user |
| Partition Co-Efficient Kow | Ratio of concentration between octanol and water. Values are given as the log value. A high value indicates a substance may bioaccumulate |
| Record Keeping | Includes a spray diary |
| REI | Restricted Entry Interval – The length of time after application before entry into the treated area is permitted without the use of protective equipment. For indoor environments, this time period commences once ventilation after treatment begins. |
| Safety Note | A brief document providing hazardous substance information for transport, storage and emergency management purposes |
| STEL | Short term exposure level |
| Tolerable Exposure Limit | Maximum concentration limit of a substance above which persons must not be exposed |
| Tracking | For some hazardous substances, a record must be kept of the transport, storage, sale and use of the product |
| TWA | Time weighted average |
| Workplace Exposure Standard | An occupational health standard limiting concentrations of specified substances to which persons are exposed |
| Wide Dispersive Use | A method of application involving equipment such as boom sprayers, mist blowers, vine sprayers, row sprayers, etc., as well as aerial application. Hand gunning within 30m of a property boundary is also classed as wide dispersive use. Knapsack sprayers are not classed as wide dispersive use |

Please Note

Users must ensure that the most up to date version of this safety data sheet is used.

This Safety Data Sheet summarises information on this product, and how to safely handle and use the product. Each user should familiarise themselves with the product label, Safety Note and Safety Data Sheet, and consider the information in the context of how the product will be handled and used, including in conjunction with other products. Orion AgriScience Ltd assumes no responsibility for the accuracy, completeness or suitability of this information. The user is responsible for determining the suitability and accuracy of this information for their particular purposes.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Always read the product label before use.