


1: Identification of the Substance and Supplier

Product Name	ALIGN
Recommended Use	Plant Growth Regulator
Suppliers 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	April 2023

2: Hazards Identification

Hazard Pictograms	
Signal Words	Warning
Hazard Classes:	Hazard Statements:
Acute Oral Toxicity (Cat. 4)	H302 Harmful if swallowed
Specific Target Organ Toxicity repeated exposure (Cat. 2)	H373 May cause damage to organs through prolonged or repeated exposure
Corrosive to Metals (Cat. 1)	H290 May be corrosive to metals
Hazardous to the aquatic environment chronic (Cat. 3)	H412 Harmful to aquatic life with long lasting effects
Hazardous to soil organisms	H422 Toxic to the soil environment
Hazardous to terrestrial Vertebrate	H432 Toxic to terrestrial vertebrates
Precautionary Statements:	
Prevention	P264 Wash hands thoroughly after handling P270 Do not eat, drink or smoke when using this product P260 Do not breathe spray P234 Keep only in original packaging Keep out of reach of children. Read label before use. Avoid contact with eyes and skin. Do not breathe in the spray mist. When mixing or applying, wear personal protection as described in section 8. Take all reasonable steps to ensure that this product does not cause any significant adverse effects to the environment beyond the application area. Do not apply directly into or onto
Response	P301+P317 IF SWALLOWED: Get medical help P330 Rinse mouth P319 Get medical help if you feel unwell P390 Absorb spillage to prevent material damage First aid measures described in section 4. Contain and collect spillage for disposal. In an emergency call 111, Police or Fire Brigade. For specialist advice in an emergency only, call 0800 CHEMCALL (0800 243 6225) (24 hrs).
Storage	P406 Store in a corrosive resistant container with a resistant inner liner Keep out of reach of children.
Disposal	P501 Dispose of contents by using it in accordance with this label. Dispose of the container via AgRecovery after triple rinsing (use the rinsate for spraying).

3: Composition/ Information on Ingredients

Ingredient	CAS No	Content (% w/v)
Mepiquat chloride (active ingredient)	24307-26-4	30.5
Chlorethephon (active ingredient)	16672-87-0	15.5
Acetic acid	64-19-7	1.4
Other ingredients	Proprietary	Remainder

4: First Aid Measures

If medical advice is needed, have product container or label at hand. For advice call the National Poisons Centre or a Doctor

Ingestion:	Rinse mouth. Seek medical advice if feeling unwell
Skin Contact:	Wash with plenty of soap and water. Seek medical advice if irritation occurs.
Eye Contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if easy to do so. Continue rinsing. Seek medical advice if irritation persists.
Inhalation:	Remove to fresh air and keep at rest in a position comfortable for breathing. Seek medical advice if feeling unwell.
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)

Symptoms of Exposure which could occur if this material is not handled in accordance with instructions:

Ingestion:	Indigestion, diarrhea, urinary urgency
Skin Contact:	May cause irritation
Eye Contact:	May cause irritation
Inhalation:	Unknown

5: Fire-Fighting Measures

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.
Specific Hazards Arising from Fire	No data available

6: Accidental Release Measures

Personal Precautions	Caution: Floors may be slippery if wet. Wear personal protective clothing and equipment as described in section 8. Exclude non-essential people from the area.
Environmental Precautions	Prevent further spillage or leakage. Prevent material from entering drains, waterways, etc.
Clean Up	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: Handling and Storage

Storage:	Keep out of reach of children. Store in the original tightly closed container in a secure area.
Handling and Use:	Keep out of reach of children. Refer to Prevention statements in section 2 above. Keep people and animals away from the area while spraying and for the duration of the REI.
REI	Until spray has dried

8: Exposure Controls / Personal Protection

Tolerable Exposure Limit	None established
Workplace Exposure Standards	Acetic acid 10 ppm / 25 mg/m ³ (8hr TWA), 15 ppm / 37 mg/m ³ (15 min STEL)
Engineering Controls	Select spray application equipment to minimize exposure to operator and bystanders
Personal Protection:	
Eye	Safety glasses/goggles when mixing or applying
Skin	Cotton overalls snugly fitting at the neck, wrist and ankle, boots and waterproof gloves when mixing and applying
Respiratory	Not required where spray mist is not inhaled. Otherwise, respirator (organic vapour and particulate matter) is required.

Clean protective equipment after use

9: Physical and Chemical Properties

Appearance	Clear Amber Liquid
Odour	Slight
Odour Threshold	No data available
pH	0.8 approx.
Melting Point/Freezing Point	< 0°C
Boiling Point	> 100°C
Flash Point	Not applicable
Flammability	Not flammable
Upper/Lower Flammability Limits	Not applicable
Vapour Pressure	No data available
Vapour Density	No data available
Relative Density	1.09 g/mL (approx.)
Solubility in Water	Soluble
Partition Coefficient: n-octanol/water	See section 12
Auto ignition Temperature	Not applicable
Decomposition Temperature	No data available
Kinematic Viscosity	No data available

10: Stability and Reactivity

Stability	Stable under normal conditions
Hazardous Reactions	This product should only be mixed, contained in or sprayed by, equipment made from stainless steel, fibreglass, or plastic. A highly flammable gas (hydrogen) may be formed from the contact of this product with galvanised or unlined steel. All spray equipment, including pumps, spray tanks, lines, nozzles, and landing gear (aircraft) should be thoroughly washed with water after each day of spraying.
Incompatibility	See above
Hazardous Decomposition Products	See above

11: Toxicological Information

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

Acute Oral Toxicity	LD50 > 300 mg/kg
Acute Dermal Toxicity	LD50 > 5000 mg/kg
Acute Inhalation Toxicity	LD50 > 5 mg/L
Skin Irritant/Corrosive	None
Eye Irritant/Corrosive	None
Sensitisation Effects	None
Mutagenic Effects	None

Carcinogenic Effects	None
Reproductive Effects	None
Specific Organ Toxicity	Long term animal feeding studies on the active ingredients have found various effects at higher feeding levels including sedation and tonic 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: Ecological Information

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

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

Ecotoxicity	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. 	
Persistence/degradability	Biodegradable. DT50 (soil) 13 days (typical) (Mepiquat chloride)	
	Biodegradable. DT50 (soil) 13 days (typical) (Chlorethepon)	
Bioaccumulative Potential	Octanol-water partition coefficient	LogP = -3.55 (low) (Mepiquat chloride) LogP = -1.89 (low) (Chlorethepon)
Soil Mobility	Soil organic carbon water partitioning coefficient	Not available (Mepiquat chloride) Not available (Chlorethepon)
Environmental Exposure Limit:	None established	

13: Disposal Considerations

Product	Dispose of product by using it in accordance with the label. 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 via AgRecovery. Do not burn. Do not use packaging for any other purpose.

14: Transport Information

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

MTQ (Non-Commercial)	250 litres
Passenger Service Vehicle	No restriction

15 Regulatory Information

EPA Approval No	HSR000806
ACVM Registration No	P5989
Qualified Person	Not required
Certified Handler	Not required
Workplace Only	No
Tracking	Not required
Record Keeping	Not required
Site Requirements under EPA Notice and HSWHS Regs:	<ul style="list-style-type: none"> • A hazardous substance location compliance certificate is not required • A hazardous area is not required • Separation distances for class 3 and class 6 substances to protected places and public places is not applicable • Fire extinguishers are not required • Signage is required for more than 1000 litres • An emergency response plan is required for more than 1000 litres • Secondary containment is required for more than 1000 litres • Segregation from incompatible substances is not required
Additional Requirements	Refer to NZS 8409:2004 'Management of Agrichemicals', and relevant local and regional council plans

16: Other Information

Glossary	
ADE	Acceptable Daily Exposure – A daily dose, received via any route, below which no adverse effects are expected over a lifetime of exposure
ACVM	Agricultural Compounds and Veterinary Medicines group of the Ministry of Primary Industries
Cat.	GHS category
Ceiling	A concentration that should not be exceeded at any time during any part of the working day
Certified Handler	A qualification issued by a Compliance Certifier to handle and use particularly toxic substances (6.1A and 6.1B)
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.
EPA Notice	Hazardous Property Controls Notice 2017
ERP Guide	Dangerous Goods – Initial Emergency Response Guide SNZ HB 76:2008
GHS	Globally harmonized system of classification and labelling of chemicals
Hazardous Substance Location Compliance Certificate	For locations storing hazard substances of certain classes above threshold quantities
Hazardous Area	A designated area designed for the presence of flammable substances - Refer AS/NZS 60079.10.1:2009
HAZCHEM Code	Emergency action code for emergency services
HSWHS Regs	Health and Safety at Work (Hazardous Substances) Regulations 2017
LC50	Concentration that will kill 50% of organisms
LD50	Dose that will kill 50% of organisms
MTQ	Maximum Transport Quantity. The maximum amount of dangerous goods that can be transported by road by the user
Notification	Advance notice given to neighbours and other affected parties, of details of proposed application, and

Octanol-Water Partition Coefficient	other details as described The partition coefficient of a substance between n-octanol and water, used as the Logarithm base 10 form, as an indicator that a substance may bioaccumulate
PDE	Permitted Daily Exposure - A daily dose below which no adverse effects are expected over a lifetime of exposure
Protected Place	Residential properties, schools, hospitals, kindys, factories, shops, warehouses, etc., and other places where people assemble
Public Place	A place frequented by the public, including roads (does not include private property)
Qualified Person	A requirement for the loader, contractor or person applying the product to hold a qualification such as a GROWSAFE Certificate, Unit Standard 21563, etc.
Record Keeping	Includes a spray diary or other record of application
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.
Segregation	Certain classes of substances must not be in contact with, and must be stored separately from, certain other classes as specified in HSWHS Regs
Separation Distances	The distances specified in Part 11 and Part 13 of HSWHS Regs between storage and/or use of hazardous substances and protected places and/or public places
Signage	Positioned at entrances to commercial premises providing information on the hazardous substances present
Soil Adsorption Coefficient (Kd)	The ratio of the concentrations of a substance adsorbed onto a solid sorbent to that dissolved in a liquid phase. The higher the value the less mobile the chemical is in soil
Soil Organic Carbon-Water Partitioning Coefficient (Koc)	The ratio of the mass of a chemical that is adsorbed in the soil per unit mass of organic carbon in the soil. The higher the value the less mobile the chemical is in soil
STEL	Short term exposure level – 15 minute time weighted average
Tolerable Exposure Limit	Maximum concentration limit of a substance above which persons must not be exposed
Tracking	For some particularly hazardous substances, a record must be kept of the transport, storage, sale and use of the product
TWA	Time weighted average calculated over an 8 hour working day
Workplace Exposure Standard	An occupational health standard limiting concentrations of specified substances to which persons are exposed
Workplace Only	A product that is restricted to a workplace only and under the supervision of a certified handler

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 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.