

SAFETY DATA SHEET

Section 1. Identification of the material and the supplier

Product: Substrate 14+16+18
 Product No:
 Product Use: Fertilizer
 Restrictions of Use: Refer to Section 15

New Zealand Supplier: Horticulture Ltd
 Address: 10 Firth Street
 Drury, 2113

Telephone: +64 9 294 8453
 Fax Number: +64 9 294 7272

New Zealand: **0800 764 766 (National Poison Centre)**

Date of SDS Preparation: 20 September 2017

Section 2. Hazards Identification

This substance is hazardous according to the *HSNO (Minimum Degrees of Hazard) Regulations 2001*

Group Standard & EPA Approval Code: Fertilisers (subsidiary) – HSR002571

Pictograms



Irritant Chronic Ecotoxic

Signal Word: **WARNING**

HSNO Class.	Hazard Code	Hazard Statement	GHS Category
6.1E (oral)	H303	May be harmful if swallowed.	Category 5
6.3B	H316	Causes mild skin irritation.	Category 3
6.4A	H319	Causes serious eye irritation.	Category 2A
6.5B	H317	May cause an allergic skin reaction.	Category 1
6.9B	H373	May cause damage to organs through prolonged or repeated exposure.	Category 2
9.1A	H400	Very toxic to aquatic life.	Category 1
9.3C	H433	Harmful to terrestrial vertebrates.	

Prevention Code Prevention Statement

P102	Keep out of reach of children.
P103	Read label before use.
P260	Do not breathe dust.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective clothing.

Response Code Response Statement

P101	If medical advice is needed, have product container or label at hand.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.

Storage Code Storage Statement

None allocated	
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Disposal Code Disposal Statement

P501	Triple rinse container. Cleaned packaging maybe offered for recycling or landfill in accordance with local regulations. Dispose of unwanted product as a hazardous material according to Local Regulations.
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Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Potassium nitrate	10 - 40	7757-79-1
Boric acid	0.1 - 0.2	11113-50-1
Manganese sulphate	0.1 - 1	7785-87-7
Copper sulphate	0.1 - 0.6	7758-98-7
Zinc sulphate	0.1 - 0.2	7733-02-0

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. Apply continuous irrigation with water for at least 15 minutes holding eyelids apart. 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 occurs: get medical advice/attention.
If Swallowed	Immediately rinse the mouth with water and drink afterwards plenty of water. Consult the doctor in case of persistent trouble.
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: No information available.

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable
Hazards from combustion products	Can decompose at above 130 °C. Thermal decomposition products: Nitrogen monoxide, nitrogen dioxide, dinitrogen oxide, ammonia, chloride, hydrogen chloride.
Suitable Extinguishing media	Water, Water spray, Dry chemical Do not use: Carbon dioxide (CO ₂), Foam, Sand
Precautions for firefighters and special protective clothing	In the event of fire, wear self-contained breathing apparatus. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
HAZCHEM CODE	2Z

Section 6. Accidental Release Measures

Remove all sources of ignition. Wear appropriate PPE as detailed in Section 8.

Use mechanical handling equipment for cleanup. Dispose of according to Section 13.

Do not allow to enter into surface water or drains.

Section 7. Handling and Storage

Handling

- Keep out of reach of children.
- Read label before use.
- Do not breathe dust.
- Wash hands thoroughly after handling.
- Contaminated work clothing should not be allowed out of the workplace.
- Avoid release to the environment.
- Wear protective clothing.

Storage

- To maintain product quality, do not store in heat or direct sunlight.
- Keep away from sources of ignition - No smoking.
- Keep away from combustible material.
- Protect from contamination.
- Protect from moisture.

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.

DNEL
potassium nitrate : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic effects Value: 36,7 mg/m³

End Use: Workers
Exposure routes: Skin contact
Potential health effects: Systemic effects Exposure time: 1 d
Value: 20,8 mg/kg

End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Systemic effects Exposure time: 1 d
Value: 12,5 mg/kg

End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Systemic effects Exposure time: 1 d
Value: 12,5 mg/kg

PNEC
potassium nitrate

Fresh water
Value: 0,45 mg/l

Marine water
Value: 0,045 mg/l

Ceiling Limit Value
Value: 4,5 mg/l

Engineering Controls

Ensure adequate ventilation is available.

Eyes	In case of dust formation: Tightly fitting safety goggles
Hands and Skin	Wearing of gloves and closed work clothing is recommended.
Respiratory	Breathing apparatus only if aerosol or dust is formed.
General	Wash hands before breaks and at the end of workday.

Section 9 Physical and Chemical Properties

Appearance	Various colours - crystalline
Odour	odourless
Odour Threshold	Not available
pH @ 20°C	ca. 5, Concentration: 100,00 g/l, 20 °C
Boiling Point	Not available
Melting Point	Not available
Freezing Point	Not available
Flash Point	Not available
Flammability	The product is not flammable.
Upper and Lower Explosive Limits	Not available
Vapour Pressure	Not available
Bulk Density	ca. 1.200 kg/m ³
Solubilities	Soluble
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available

Decomposition Temperature	ca. 130 °C, To avoid thermal decomposition, do not overheat.
Kinematic Viscosity	Not available
Particle Characteristics	Not applicable
Oxidising properties	Manual of tests and criteria. Test O.1 (United Nations Recommendations on the Transport of Dangerous Goods).

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Conditions to Avoid	Temperature 130 degrees Celsius Heat, flames and sparks.
Incompatible Materials	Acids Bases Organic materials Powdered metals
Hazardous Decomposition Products	nitrogen oxides (NOx) ammonia

Section 11 Toxicological Information

Acute Effects:

Swallowed	May be harmful if swallowed.
Dermal	Not applicable.
Inhalation	Not applicable.
Eye	Causes severe irritation to eyes.
Skin	Causes mild skin irritation. May cause an allergic skin reaction.

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.

Components:

potassium nitrate :

Acute oral toxicity	: LD50: > 2.000 mg/kg, rat
Acute inhalation toxicity	: LC50: > 0,527 mg/l, rat
Acute dermal toxicity	: LD50: > 5.000 mg/kg, rat
Skin corrosion/irritation	: rabbit, Result: No skin irritation
Serious eye damage/eye irritation	: rabbit, Result: No eye irritation
Respiratory or skin sensitization	: Result: non-sensitizing
Germ cell mutagenicity	
Genotoxicity in vitro	: no data available
Carcinogenicity	: Did not show carcinogenic effects in animal experiments.

Reproductive toxicity : No toxicity to reproduction
 Teratogenicity : Did not show teratogenic effects in animal experiments.
 STOT - single exposure : Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure : rat, 1 d, NOAEL: >= 1.500 mg/kg
 : Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

boric acid :

Acute oral toxicity : LD50: 3.450 mg/kg, mouse
 : LD50: 2.660 mg/kg, rat
 Acute inhalation toxicity : LC50: > 2 mg/l, rat
 Acute dermal toxicity : LD50 Dermal: > 2.000 mg/kg, rabbit
 Germ cell mutagenicity
 Genotoxicity in vitro : Mammalian cell gene mutation assay, Concentration: 1,0-10,0 mg/ml, Result: Mutagenicity tests revealed no genotoxic potential., In vitro tests did not show mutagenic effects
 Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
 Carcinogenicity : rat, Dose: 446; 1150 mg, Oral, OECD Test Guideline 451, Animal testing did not show any carcinogenic effects.
 Teratogenicity :rat, Dose: 0; 19; 36; 55; 76; 143 mg/kg, Oral, Animal ingestion studies in several species, at high doses, indicate that borates cause reproductive and developmental effects.

manganese sulphate :

Acute oral toxicity : LD50: 2.150 mg/kg, rat

copper sulphate :

Acute oral toxicity : LD50 Oral: 300 mg/kg, rat
 Skin corrosion/irritation : Classification: Irritant
 Serious eye damage/eye irritation : Classification: Irritant

zinc sulphate :

Acute oral toxicity : LD50: 862 - 4.429 mg/kg, rat
 Acute dermal toxicity : LD50 Dermal: > 2.000 mg/kg, rat
 Skin corrosion/irritation : rabbit, Classification: Irritating to skin
 Serious eye damage/eye irritation : rabbit, Result: Risk of serious damage to eyes.

Section 12. Ecotoxicological Information

HSNO Classifications: 9.1A = Very toxic to aquatic life.
 9.3C = Harmful to terrestrial vertebrates.

Persistence and degradability	The methods for determining the biological degradability are not applicable to inorganic substances.
Bioaccumulation	Does not accumulate in organisms.
Mobility in Soil	Slightly mobile in soils.
Other adverse effects	No data available

Components:**Toxicity**

Component	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to algae
potassium nitrate	LC50: > 100 mg/l, 96 h, Fish	EC50: 490 mg/l, 48 h, Daphnia magna (Water flea)	LC50: >= 1.700 mg/l, 10 d
manganese sulphate		EC50: 30 mg/l, Daphnia magna (Water flea)	
copper sulphate	LC50: 0,1 - 2,5 mg/l, 96 h, Salmo sp	EC50: 0,024 mg/l, 48 h, Daphnia magna (Water flea)	EC50: 0,1 mg/l, 4 h, Scenedesmus quadricauda (Green algae)
zinc sulphate	LC50: 0,43 mg/l, 96 h, Oncorhynchus mykiss (rainbow trout)	EC50: 1,86 mg/l, 48 h, Daphnia magna (Water flea)	: EC50: 0,52 mg/l, 120 h, Scenedesmus quadricauda (Green algae)

Other

Component	Biodegradability	Bioaccumulation	Mobility in soil
potassium nitrate	The methods for determining the biological degradability are not applicable to inorganic substances.	Does not bioaccumulate.	no data available
manganese sulphate			
copper sulphate			
zinc sulphate			
Boric Acid	no data available		no data available

Section 13. Disposal Considerations**Disposal Method:**

Triple rinse container. Cleaned packaging maybe offered for recycling or landfill in accordance with local regulations. Dispose of unwanted product as a hazardous material according to Local Regulations.

Precautions and methods to avoid:

Do not allow to enter into surface water or drains where possible.

Section 14 Transport Information

This product is classified as a Dangerous Good for transport in NZ ; NZS 5433:2012

**Road and Rail Transport**

UN No: 3077
 Class-primary 9
 Packing Group III

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE, ZINC SULPHATE)

Air Transport

UN No: 3077
Class-primary 9
Packing Group III
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE, ZINC SULPHATE)

Marine Transport

UN No: 3077
Class-primary 9
Packing Group III
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER SULPHATE, ZINC SULPHATE)
Marine Pollutant Yes

DG Exemption:

Limited quantities exemption for <5kg

Section 15 Regulatory Information

EPA Approval Code: Fertilisers (subsidiary) – HSR002571

HSNO Classification: 6.1E(oral), 6.3B, 6.4A, 6.5B, 6.9B, 9.1A, 9.3C

HSNO Controls:
Trigger quantities for this substance:

	Trigger Quantity
Approved Handler	Not required as per group standard
Location Certificate	Not required
Tracking Trigger Quantities	Not applicable
Signage Trigger Quantities	100kg and 1000kg for farms not less than 4 hectares
Emergency Response Plan trigger Quantities	100kg and 1000kg for farms not less than 4 hectares
Restrictions of use	None

Section 16 Other Information

Glossary

EC₅₀ Median effective concentration.
EEL Environmental Exposure Limit.
EPA Environmental Protection Authority
HSNO Hazardous Substances and New Organisms.
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

1. HSNO Approved Code of Practice: Preparation of Safety Data Sheets, September 2006.

Disclaimer

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Please contact the New Zealand distributor, Horticulture Ltd, if further information is required.

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