

YaraMila COMPLEX

Ballance Agri-Nutrients

Chemwatch Hazard Alert Code: 3

Chemwatch: 5314-55
 Version No: 3.1.1.1
 Safety Data Sheet according to HSNO Regulations

Issue Date: 23/08/2018
 Print Date: 22/10/2018
 S.GHS.NZL.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	YaraMila COMPLEX
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Fertiliser
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Details of the supplier of the safety data sheet

Registered company name	Ballance Agri-Nutrients
Address	Hewletts Road Mount Maunganui New Zealand
Telephone	+64 7 572 7900
Fax	+64 7 575 6233
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	0800 2436 2255
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Not regulated for transport of Dangerous Goods.

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	0		
Toxicity	2		
Body Contact	3		
Reactivity	2		
Chronic	2		

0 = Minimum
 1 = Low
 2 = Moderate
 3 = High
 4 = Extreme

Classification [1]	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Specific target organ toxicity - repeated exposure Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI
Determined by Chemwatch using GHS/HSNO criteria	6.1D (oral), 6.1E (respiratory), 6.3A, 6.9B (inhalation), 8.3A

Label elements

Hazard pictogram(s)	
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SIGNAL WORD **DANGER**

Hazard statement(s)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.

H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s) Prevention

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P270	Do not eat, drink or smoke when using this product.

Precautionary statement(s) Response

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Substances**

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7778-80-5	20-<25	<u>potassium sulfate</u>
6484-52-2	15-<20	<u>ammonium nitrate</u>
7757-79-1	12.5-<15	<u>potassium nitrate</u>
7783-20-2	10-<12.5	<u>ammonium sulfate</u>
7722-76-1	5-<7	<u>ammonium phosphate, monobasic</u>
7757-93-9	5-<7	<u>calcium phosphate, dibasic</u>
7778-77-0	5-<7	<u>potassium phosphate, monobasic</u>
7783-28-0	3-<5	<u>diammonium phosphate</u>
7789-75-5	2-<3	<u>calcium fluoride</u>
12179-04-3	0.1-<0.2	<u>sodium borate, pentahydrate</u>

SECTION 4 FIRST AID MEASURES**Description of first aid measures**

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary.
Ingestion	<ul style="list-style-type: none"> ▶ IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. ▶ For advice, contact a Poisons Information Centre or a doctor. ▶ Urgent hospital treatment is likely to be needed. ▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. ▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. <p>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</p> <ul style="list-style-type: none"> ▶ INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if

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- ▶ possible) to maintain open airway and prevent aspiration.
- NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

Indication of any immediate medical attention and special treatment needed

for phosphate salts intoxication:

- ▶ All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
- ▶ Ingestion of large quantities of phosphate salts (over 1.0 grams for an adult) may cause an osmotic catharsis resulting in diarrhoea and probable abdominal cramps. Larger doses such as 4-8 grams will almost certainly cause these effects in everyone. In healthy individuals most of the ingested salt will be excreted in the faeces with the diarrhoea and, thus, not cause any systemic toxicity. Doses greater than 10 grams hypothetically may cause systemic toxicity.
- ▶ Treatment should take into consideration both anionic and cation portion of the molecule.
- ▶ All phosphate salts, except calcium salts, have a hypothetical risk of hypocalcaemia, so calcium levels should be monitored.

Treat symptomatically.

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.

- ▶ Most produce a peak effect within 30 minutes.
- ▶ Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
- ▶ Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
- ▶ Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.
- ▶ Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.
- ▶ Naloxone, glucose and thiamine should be given if a multiple ingestion is suspected.
- ▶ Decontaminate using Ipecac Syrup for alert patients or lavage for obtunded patients who present within 2-4 hours of ingestion.
- ▶ Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue. (Cyanosis alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 5 minutes; repeat, using the same dose if symptoms of hypoxia fail to subside within 1 hour.

[Ellenhorn and Barceloux: Medical Toxicology]

BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B,NS,SQ

B: Background levels occur in specimens collected from subjects **NOT** exposed

NS: Non-specific determinant; also observed after exposure to other materials

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Non combustible. ▶ Not considered a significant fire risk, however containers may burn. <p>Decomposition may produce toxic fumes of:</p> <p>hydrogen fluoride nitrogen oxides (NOx) phosphorus oxides (POx) sulfur oxides (SOx) metal oxides</p> <p>May emit poisonous fumes. May emit corrosive fumes.</p>

SECTION 6 ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment.
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Continued...

Major Spills	<p>Moderate hazard.</p> <ul style="list-style-type: none"> ▶ CAUTION: Advise personnel in area. ▶ Alert Emergency Services and tell them location and nature of hazard. ▶ Control personal contact by wearing protective clothing.
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Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry area protected from environmental extremes. ▶ Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Polyethylene or polypropylene container. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates. ▶ Avoid reaction with oxidising agents ▶ Avoid storage with reducing agents.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	calcium fluoride	Fluorides, as F	2.5 mg/m ³	Not Available	Not Available	(bio) - Exposure can also be estimated by biological monitoring.
New Zealand Workplace Exposure Standards (WES)	sodium borate, pentahydrate	Borates, tetra, sodium salts: Pentahydrate	1 mg/m ³	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	sodium borate, pentahydrate	Borates, tetra, sodium salts: Anhydrous	1 mg/m ³	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	sodium borate, pentahydrate	Borates, tetra, sodium salts: Decahydrate	5 mg/m ³	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
potassium sulfate	Potassium sulfate (2:1); (Dipotassium sulfate)	20 mg/m ³	220 mg/m ³	1,300 mg/m ³
ammonium nitrate	Ammonium nitrate	6.7 mg/m ³	73 mg/m ³	440 mg/m ³
potassium nitrate	Potassium nitrate	9 mg/m ³	100 mg/m ³	600 mg/m ³
ammonium sulfate	Ammonium sulfate	13 mg/m ³	140 mg/m ³	840 mg/m ³
ammonium phosphate, monobasic	Ammonium dihydrogen phosphate; (Monoammonium phosphate)	17 mg/m ³	190 mg/m ³	1,100 mg/m ³
potassium phosphate, monobasic	Potassium phosphate, monobasic	9.6 mg/m ³	110 mg/m ³	630 mg/m ³
diammonium phosphate	Ammonium phosphate dibasic; (Diammonium phosphate)	30 mg/m ³	330 mg/m ³	2,000 mg/m ³
calcium fluoride	Calcium fluoride	15 mg/m ³	170 mg/m ³	1,000 mg/m ³
sodium borate, pentahydrate	Sodium borate decahydrate (Borax)	6 mg/m ³	190 mg/m ³	1,100 mg/m ³
sodium borate, pentahydrate	Sodium borate; (Disodium tetraborate)	6 mg/m ³	88 mg/m ³	530 mg/m ³

Ingredient	Original IDLH	Revised IDLH
potassium sulfate	Not Available	Not Available
ammonium nitrate	Not Available	Not Available
potassium nitrate	Not Available	Not Available
ammonium sulfate	Not Available	Not Available
ammonium phosphate, monobasic	Not Available	Not Available
calcium phosphate, dibasic	Not Available	Not Available
potassium phosphate, monobasic	Not Available	Not Available
diammonium phosphate	Not Available	Not Available
calcium fluoride	250 mg/m ³	Not Available
sodium borate, pentahydrate	Not Available	Not Available

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection	See Hand protection below
Hands/feet protection	<p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care.</p> <p>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> ▶ polychloroprene. ▶ nitrile rubber. ▶ butyl rubber.
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream.

Respiratory protection

Type AX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AX P1 Air-line*	- -	AX PAPR-P1 -
up to 50 x ES	Air-line**	AX P2	AX PAPR-P2
up to 100 x ES	-	AX P3 Air-line*	-
100+ x ES	-	Air-line**	AX PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

If inhalation risk above the TLV exists, wear approved dust respirator.

Use respirators with protection factors appropriate for the exposure level.

- ▶ Up to 5 X TLV, use valveless mask type; up to 10 X TLV, use 1/2 mask dust respirator
- ▶ Up to 50 X TLV, use full face dust respirator or demand type C air supplied respirator
- ▶ Up to 500 X TLV, use powered air-purifying dust respirator or a Type C pressure demand supplied-air respirator
- ▶ Over 500 X TLV wear full-face self-contained breathing apparatus with positive pressure mode or a combination respirator with a Type C positive pressure supplied-air full-face respirator and an auxiliary self-contained breathing apparatus operated in pressure demand or other positive pressure mode

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Green prills with no odour; soluble in water.		
Physical state	Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	4.5 (10%)	Decomposition temperature	Not Available

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Melting point / freezing point (°C)	160	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	If applied to the eyes, this material causes severe eye damage.
Chronic	There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Crystalline silicas activate the inflammatory response of white blood cells after they injure the lung epithelium. Chronic exposure to crystalline silicas reduces lung capacity and predisposes to chest infections. Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

YaraMila COMPLEX	TOXICITY	IRRITATION
	Not Available	Not Available
potassium sulfate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1] Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
ammonium nitrate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg ^[1] Oral (rat) LD50: 2217 mg/kg ^[2]	Not Available
potassium nitrate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg ^[1] Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
ammonium sulfate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1] Oral (rat) LD50: >2000 mg/kg ^[2]	Not Available

ammonium phosphate, monobasic	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg ^[1]	Not Available
	Oral (rat) LD50: >2000 mg/kg ^[1]	
calcium phosphate, dibasic	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >7940 mg/kg ^[2]	Eye (rabbit): 8 on a scale of 110
	Oral (rat) LD50: >2000 mg/kg ^[1]	Skin (rabbit): 0 on a scale of 8
potassium phosphate, monobasic	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Oral (rat) LD50: >500 mg/kg ^[1]	
diammonium phosphate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg ^[1]	Not Available
	Oral (rat) LD50: >2000 mg/kg ^[1]	
calcium fluoride	TOXICITY	IRRITATION
	Oral (rat) LD50: 4250 mg/kg ^[2]	Not Available
sodium borate, pentahydrate	TOXICITY	IRRITATION
	Oral (rat) LD50: 2660 mg/kg ^[2]	Eye (rabbit) 100 mg - SEVERE

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

POTASSIUM SULFATE	For sodium sulfate: The acute toxicity of sodium sulfate has not been established, but existing data indicate very low acute toxicity. Very high doses cause severe diarrhea. Sodium sulfate is not irritating to the skin, and only slightly irritating to the eyes. It is highly unlikely to cause sensitizing effects.
AMMONIUM SULFATE	For ammonium sulfate: Acute toxicity: Ammonium sulfate has relatively low acute toxicity. In healthy humans, inhaling high concentrations caused mild reduction in lung function. Animal testing has not shown ammonium sulfate to cause irritation to the skin and eyes. There is no available data on sensitization.
POTASSIUM PHOSPHATE, MONOBASIC	No data of toxicological significance identified in literature search.
SODIUM BORATE, PENTAHYDRATE	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. for sodium borate, decahydrate. Reproductive effector in rats Mutagenic towards bacteria
AMMONIUM SULFATE & AMMONIUM PHOSPHATE, MONOBASIC & CALCIUM PHOSPHATE, DIBASIC & DIAMMONIUM PHOSPHATE & CALCIUM FLUORIDE & SODIUM BORATE, PENTAHYDRATE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.
AMMONIUM PHOSPHATE, MONOBASIC & DIAMMONIUM PHOSPHATE	No significant acute toxicological data identified in literature search.

Acute Toxicity	✓	Carcinogenicity	⊖
Skin Irritation/Corrosion	✓	Reproductivity	⊖
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	⊖	STOT - Repeated Exposure	✓
Mutagenicity	⊖	Aspiration Hazard	⊖

Legend: ✗ – Data available but does not fill the criteria for classification
 ✓ – Data available to make classification
 ⊖ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

YaraMila COMPLEX	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

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	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
potassium sulfate	LC50	96	Fish	680mg/L	4
	EC50	48	Crustacea	=890mg/L	1
	EC50	72	Algae or other aquatic plants	=2900mg/L	1
ammonium nitrate	EC50	48	Crustacea	=111840mg/L	1
	NOEC	20	Fish	0.003mg/L	4
potassium nitrate	LC50	96	Fish	1-378mg/L	2
	NOEC	720	Fish	58mg/L	2
ammonium sulfate	LC50	96	Fish	0.068mg/L	4
	EC50	48	Crustacea	121.7mg/L	2
	NOEC	216	Fish	0.064mg/L	4
ammonium phosphate, monobasic	LC50	96	Fish	>85.9mg/L	2
	EC50	72	Algae or other aquatic plants	>97.1mg/L	2
	NOEC	72	Algae or other aquatic plants	3.57mg/L	2
calcium phosphate, dibasic	LC50	96	Fish	>13.5mg/L	2
	EC50	48	Crustacea	>2.9mg/L	2
	EC50	72	Algae or other aquatic plants	>4.4mg/L	2
	NOEC	96	Fish	>13.5mg/L	2
potassium phosphate, monobasic	Not Available	Not Available	Not Available	Not Available	Not Available
diammonium phosphate	LC50	96	Fish	26.5mg/L	4
calcium fluoride	LC50	96	Fish	51mg/L	2
	NOEC	504	Crustacea	14.1mg/L	2
sodium borate, pentahydrate	LC50	96	Fish	74mg/L	2
	EC50	72	Algae or other aquatic plants	54mg/L	2
	NOEC	768	Fish	0.009mg/L	2

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
potassium nitrate	LOW	LOW
ammonium sulfate	HIGH	HIGH
ammonium phosphate, monobasic	HIGH	HIGH

Bioaccumulative potential

Ingredient	Bioaccumulation
potassium nitrate	LOW (LogKOW = 0.209)
ammonium sulfate	LOW (LogKOW = -2.2002)
ammonium phosphate, monobasic	LOW (LogKOW = -0.7699)

Mobility in soil

Ingredient	Mobility
potassium nitrate	LOW (KOC = 14.3)
ammonium sulfate	LOW (KOC = 6.124)
ammonium phosphate, monobasic	HIGH (KOC = 1)

SECTION 13 DISPOSAL CONSIDERATIONS**Waste treatment methods**

Product / Packaging disposal	<ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal. ▶ Bury residue in an authorised landfill. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
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Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.

The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous.

SECTION 14 TRANSPORT INFORMATION**Labels Required**

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (UN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture**

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002624	N.O.S. (Subsidiary Hazard) Group Standard 2017
HSR002535	Gas Under Pressure Mixtures (Subsidiary Hazard) Group Standard 2017
HSR002596	Laboratory Chemicals and Reagent Kits Group Standard 2017
HSR002530	Cleaning Products (Subsidiary Hazard) Group Standard 2017
HSR002585	Fuel Additives (Subsidiary Hazard) Group Standard 2017
HSR002519	Aerosols (Subsidiary Hazard) Group Standard 2017
HSR002521	Animal Nutritional and Animal Care Products Group Standard 2017
HSR002606	Lubricants, Lubricant Additives, Coolants and Anti-freeze Agents (Subsidiary Hazard) Group Standard 2017
HSR002644	Polymers (Subsidiary Hazard) Group Standard 2017
HSR002647	Reagent Kits Group Standard 2017
HSR002670	Surface Coatings and Colourants (Subsidiary Hazard) Group Standard 2017
HSR002638	Photographic Chemicals (Subsidiary Hazard) Group Standard 2017
HSR002565	Embalming Products (Subsidiary Hazard) Group Standard 2017
HSR002578	Food Additives and Fragrance Materials (Subsidiary Hazard) Group Standard 2017
HSR002558	Dental Products (Subsidiary Hazard) Group Standard 2017
HSR002684	Water Treatment Chemicals (Subsidiary Hazard) Group Standard 2017
HSR002573	Fire Fighting Chemicals Group Standard 2017
HSR100425	Pharmaceutical Active Ingredients Group Standard 2017

HSR002600	Leather and Textile Products (Subsidiary Hazard) Group Standard 2017
HSR002571	Fertilisers (Subsidiary Hazard) Group Standard 2017
HSR002648	Refining Catalysts Group Standard 2017
HSR002653	Solvents (Subsidiary Hazard) Group Standard 2017
HSR002544	Construction Products (Subsidiary Hazard) Group Standard 2017
HSR002549	Corrosion Inhibitors (Subsidiary Hazard) Group Standard 2017
HSR100757	Veterinary Medicine (Limited Pack Size, Finished Dose) Standard 2017
HSR100758	Veterinary Medicines (Non-dispersive Closed System Application) Group Standard 2017
HSR100759	Veterinary Medicines (Non-dispersive Open System Application) Group Standard 2017
HSR002612	Metal Industry Products (Subsidiary Hazard) Group Standard 2017
HSR002503	Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2017
HSR002552	Cosmetic Products Group Standard 2017

POTASSIUM SULFATE(7778-80-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

AMMONIUM NITRATE(6484-52-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

POTASSIUM NITRATE(7757-79-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

AMMONIUM SULFATE(7783-20-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

AMMONIUM PHOSPHATE, MONOBASIC(7722-76-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

CALCIUM PHOSPHATE, DIBASIC(7757-93-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

POTASSIUM PHOSPHATE, MONOBASIC(7778-77-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

DIAMMONIUM PHOSPHATE(7783-28-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Inventory of Chemicals (NZIoC)

CALCIUM FLUORIDE(7789-75-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Workplace Exposure Standards (WES)

SODIUM BORATE, PENTAHYDRATE(12179-04-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals

New Zealand Workplace Exposure Standards (WES)

New Zealand Inventory of Chemicals (NZIoC)

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity beyond which controls apply for closed containers	Quantity beyond which controls apply when use occurring in open containers
Not Applicable	Not Applicable	Not Applicable

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSSL	N (sodium borate, pentahydrate; potassium phosphate, monobasic; ammonium phosphate, monobasic; ammonium sulfate; ammonium nitrate; calcium phosphate, dibasic; potassium nitrate; potassium sulfate)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	23/08/2018
Initial Date	22/08/2018

Other information

Ingredients with multiple cas numbers

Name	CAS No
diammonium phosphate	7783-28-0, 14265-44-2
calcium fluoride	7789-75-5, 14542-23-5
sodium borate, pentahydrate	12179-04-3, 11130-12-4, 12045-88-4

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
 PC—STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit.
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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 TEL (+61 3) 9572 4700.