1. Identification of Substance & Company

Product

Product name	OptiSolve Super 7
Product code	AGRI-0170
HSNO approval	HSR002521
Approval description	Animal Nutritional and Animal Care Products Group Standard 2020
UN number	3077
Proper Shipping Name	Environmentally Hazardous Substance, Solid, N.O.S. [Zinc Sulphate]
DG Class	9
Packaging group	III
Hazchem code	3Z
Uses	Animal feed premix

Company Details

Company	**Blue Pacific Minerals**
Address	11-17 Huttloc Drive, Tokoroa 3420 New Zealand
Website	www.bpmnz.co.nz
Telephone	+64 7 885 0550
Email	info@bpmnz.co.nz

Emergency Telephone Number: 0800 678 444

2. Hazard Identification

Approval

This product has been approved under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002521, Animal Nutritional and Animal Care Products Group Standard 2020). The substance has been classified as hazardous according to the criteria in the Hazardous substances (Hazard Classification) Notice 2020:

GHS 7 Classes	Hazard Statements
Acute toxicity category 4 (oral)	H302 - Harmful if swallowed.
STOT* single exposure category 3	H335 - May cause respiratory irritation.
Skin irritant category 2	H315 - Causes skin irritation.
Eye damage category 1	H318 - Causes serious eye damage.
Respiratory sensitiser category 1	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitiser category 1	H317 - May cause an allergic skin reaction.
Carcinogen category 2	H341 - Suspected of causing cancer.
Reproductive toxicity category 2	H361 - Suspected of damaging fertility or the unborn child.
STOT* repeated exposure category 2	H373 - May cause damage to organs through prolonged or repeated exposure.
Acute aquatic category 1	H400 - Very toxic to aquatic life.
Chronic aquatic category 1	H410 - Very toxic to aquatic life with long lasting effects.

*STOT – system target organ toxicity

SYMBOLS

DANGER

Other Classifications

There are no other classifications that are known to apply.

Precautionary Statements

Prevention
P102 - Keep out of reach of children.
P103 - Read label before use.
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/eye protection/face protection.
P281 - Use personal protective equipment as required.
P285 - In case of inadequate ventilation wear respiratory protection.

Response
P101 - If medical advice is needed, have product container or label at hand.
P308+P313 - IF exposed or concerned: Get medical advice/ attention.
P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
P330 - Rinse mouth.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P363 - Wash contaminated clothing before reuse.
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 CENTRE or doctor/physician.
P304+P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.
P391 - Collect spillage.

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

Disposal
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Conc (%)
Zinc Sulphate	7733-02-0	50-60%
Copper complex	proprietary	10-20%
Sodium chloride	7647-14-5	10-20%
Disodium Cobalt edetate	15137-09-4	1-5%
Boric Acid	10043-35-3	1-5%
Chromium Propionate	Proprietary	1-2%
Sodium selenate	13410-01-0	0.1-1%
Ethylenediamine dihydriodide	5700-49-2	0.1-1%
ingredients not contributing to GHS classes	mixture	balance

This is a commercial product whose exact ratio of components may vary. Trace quantities of impurities are also likely.

4. First Aid

General Information

If medical advice is needed, have product container or label at hand. You should call the National Poisons Centre if you feel that you may have been harmed or irritated by this product. The number is 0800 764 766 (0800 POISON) (24 hr emergency service).

Recommended first aid facilities
Ready access to running water is required. Accessible eyewash is required.

Exposure

Swallowed
IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician. Rinse mouth. If conscious, give plenty of water to drink. DO NOT INDUCE vomiting. If vomiting occurs, place victim face downwards, with the head turned to the side and lower than the hips to prevent vomit entering the lungs.

Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE or doctor/physician.

Skin contact	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/ attention. Take off contaminated clothing and wash before re-use.
Inhaled	IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician.

Advice to Doctor

Treat symptomatically

5. Firefighting Measures

Fire and explosion hazards:	There are no specific risks for fire/explosion for this chemical. It is non-flammable.
Suitable extinguishing substances:	Carbon dioxide, extinguishing powder, foam.
Unsuitable extinguishing substances:	Unknown.
Products of combustion:	Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water. May form toxic mixtures in air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures.
Protective equipment:	Self-contained breathing apparatus. Safety boots, non-flammable overalls, gloves, hat and eye protection.
Hazchem code:	2Z

6. Accidental Release Measures

Containment	If greater than 100kg is stored, secondary containment and emergency plans to manage any potential spills must be in place. In all cases design storage to prevent discharge to storm water.
Emergency procedures	In the event of spillage alert the fire brigade to location and give brief description of hazard. Stop the source of the leak, if safe to do so. Wear protective equipment to prevent skin, eye and respiratory exposure. Clear area of any unprotected personnel. Contain using sand, earth or vermiculite. Prevent by whatever means possible any spillage from entering drains, sewers, or water courses. (If this occurs contact your regional council immediately).
Clean-up method	Use absorbent (soil, sand or other inert material). Rags are not recommended for the clean-up of spills, as they may create fire or environmental hazard. Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.
Disposal	Mop up and collect recoverable material into labelled containers for recycling or salvage. Recycle containers wherever possible. This material may be suitable for approved landfill. Dispose of only in accord with all regulations.
Precautions	Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation.

7. Storage & Handling

Storage	Store locked up. Avoid storage of harmful substances with food. Store out of reach of children. Containers should be kept closed in order to minimise contamination. Keep from extreme heat and open flames. Avoid contact with incompatible substances as listed in Section 10.
Handling	Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements. Avoid skin and eye contact and inhalation of vapour, mist or aerosols.

8. Exposure Controls / Personal Protective Equipment

Workplace Exposure Standards

A workplace exposure standard (WES) has not been established by WorkSafe NZ for this product. There is a general limit of 3mg/m^3 for respirable particulates and 10mg/m^3 for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA	WES-STEL
	Disodium Cobalt edetate as Co	0.02mg/m^3 (carc, bio, skin, dsen, rsen, oto)	-
	Copper complex as Cu	0.01mg/m^3 (dsen)	-
	Chromium propionate (Cr(III))	0.5mg/m^3	-
	Sodium selenate as Se	0.02mg/m^3 (skin)	-
	EDDI as Iodine	0.01ppm, 0.05mg/m^3	-
	EDDI as Iodine	Ceiling 0.1ppm, 1mg/m3	

Engineering Controls

In industrial situations, it is expected that employee exposure to hazardous substances will be controlled to a level as far below the WES as practicable by applying the hierarchy of control required by the Health and Safety at Work Act (2015) and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016. Exposure can be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify processes or increase ventilation.

Personal Protective Equipment

General

Personal Protective Equipment (PPE) should not be used as the primary means of exposure protection, except in the event of an accident or emergency situation or where all other means of protection have proven to inadequate.
Clean PPE after use or dispose of as appropriate. Store PPE for re-use in a clean place. Regular training on the correct use of PPE should be provided. In particular the correct fitting and use of respirators and where applicable the cleaning of respirators should be undertaken.

Eyes

Protect eyes with goggles, safety glasses or full face mask. Avoid wearing contact lenses. Select eye protection in accordance with AS/NZS 1337.

Skin

Avoid any skin contact. Wear overalls, rubber boots and impervious gloves. Nitrile gloves are recommended. Protective gloves or suitably resistant material must comply with AS 2161. Replace frequently. Gloves should be checked for tears or holes before use. Protective clothing must comply with AS 2919, AS3765.1 or AS3765.2. PVC or rubber boots must comply with AS/NZS 2210.2 and selected and maintained in accordance with AS/NS2210.1. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking.

Respiratory

A respirator when airborne concentrations approach the WES (section 8). Respirators must have filters appropriate to the duty and comply with AS/NZS1716 and selected, used and maintained in accordance with AS/NS 1715. Use a respirator with a particulate filter. If using a respirator, ensure that the cartridges are correct for the potential air contamination and are in good working order. Fit testing and clear guidelines and training for use and maintenance of PPE are necessary.

WES Additional Information

Not applicable

9. Physical & Chemical Properties

Appearance	powder, solid
Odour	characteristic
Odour Threshold	no data
pH	no data
Freezing/melting point	no data
Boiling Point	no data
Flashpoint	not flammable
Flammability	not flammable
Upper & lower flammable limits	no LEL or UEL
Vapour pressure	negligible
Vapour density	no data
Specific gravity/density	no data
Solubility	partly soluble in water
Partition coefficient	no data
Auto-ignition temperature	no data
Decomposition temperature	no data
Viscosity	no data
Particle Characteristics	no data

10. Stability & Reactivity

Stability	Stable
Conditions to be avoided	Containers should be kept closed in order to avoid contamination. Keep from extreme heat and open flames.
Incompatible groups	Acids and strong oxidisers
Substance Specific Incompatibility	none known
Hazardous decomposition products	Thermal decomposition may release irritating gases, such as metal oxides or toxic gases such as carbon monoxide.
Hazardous reactions	none known

11. Toxicological Information

Summary

IF SWALLOWED: may result in irritation of the gastrointestinal tract. Ingestion of large quantities may lead to vomiting, abdominal pain, dizziness, convulsions, shock, coma and possible death.
IF IN EYES: may cause serious eye damage, corrosive to ocular tissue.
IF ON SKIN: may cause skin irritation, may aggravate existing dermatitis.
IF INHALED: may cause coughing, shortness of breath, nausea. Sensitised individual may experience an allergic reaction.
CHRONIC TOXICITY: may cause cancer (cobalt), may cause reproductive or developmental issues. Copper compounds may affect kidneys, Zinc sulphate may affect blood and haematopoietic system.

Supporting Data

Acute	**Oral**	Using LD50's for ingredients, the Acute Toxicity Estimate (ATE) (oral) for the mixture is between 300 and 2,000 mg/kg. Data considered includes: Zinc sulphate monohydrate 1891mg/kg (mouse), Copper complex 890mg/kg, sodium chloride 3000mg/kg (rat), Cobalt Sulphate Heptahydrate 330mg/kg (sheep), boric acid 466 mg B/kg (mouse) = 2668 mg/kg (mouse), Sodium selenate 1.6mg/kg (rat), 2.25mg/kg (rabbit).
	Dermal	Using LD50's for ingredients, the Acute Toxicity Estimate (ATE) (dermal) for the mixture is >2,000 mg/kg.
	Inhaled	Using LD_{50}'s for ingredients, the Acute Toxicity Estimate (ATE) (inhalation) for the mixture is >5mg/L/4h.
	Eye	The mixture is considered to be corrosive to the eye, because some of the ingredients (Zinc sulphate)present at >3% are considered eye corrosives.
	Skin	The mixture is considered to be a skin irritant, because some of the ingredients present are considered skin irritants in more concentrated form.
Chronic	**Sensitisation**	The mixture is considered to be a contact and respiratory sensitizer, because Disodium Cobalt edetate present in greater than 0.1% is known to be a contact and respiratory sensitizer.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	The mixture is considered to be a suspected carcinogen, because Disodium Cobalt edetate present in greater than 0.1% is suspected to be a carcinogen.
	Reproductive / Developmental	The mixture is considered to be a suspected reproductive or developmental toxicant, because Disodium Cobalt edetate present in greater than 0.1% is suspected to be a reproductive or developmental toxicant.
	Systemic	The mixture is considered to be a suspected target organ toxicant, because disodium cobalt edetate, Copper complex and zinc sulphate present in greater than 1% is suspected to be a target organ toxicant.
	Aggravation of existing conditions	None known.

12. Ecological Data

Summary

This mixture is considered very toxic towards aquatic organisms with long lasting effects. In all cases prevent run-off to drains, sewers and waterways.

Supporting Data

Aquatic	Using EC50's for ingredients, the calculated EC50 for the mixture is < 1 mg/L. Data considered includes: **Zinc sulphate monohydrate** 0.30179 mg/l (fish), **Copper complex** >100mg/kg, **Cobalt Sulphate Heptahydrate** EC_{50} 0.4-72 mg/L (72hr, Algae), **Sodium selenate** 0.083mg/L (48hr, Gammarus pseudolimnaeeus Scud), 0.2mg/ (96hr, Selenastrum capricornutum green algae), 0.69mg/L (96hr, Pimephales promelas), **Ethylenediamine dihydriodide** 0.6625mg/L (fish).
Bioaccumulation	No data
Degradability	No data
Soil	No evidence.
Terrestrial vertebrate	See acute toxicity.
Terrestrial invertebrate	No evidence of toxicity towards terrestrial invertebrates.
Biocidal	no data
Environmental effect levels	No EELs are available for this mixture or ingredients

13. Disposal Considerations

Restrictions	There are no product-specific restrictions, however, local council and resource consent conditions may apply, including requirements of trade waste consents.
Disposal method	Disposal of this product must comply with the Hazardous Substances (Disposal) Notice 2017 and the requirements of the Resource Management Act for which approval should be sought from the Regional Authority. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.
Contaminated packaging	Disposal of contaminated packaging must comply with the Hazardous Substances (Disposal) Notice 2017 clause 12. Ensure that the package is rendered incapable of containing any substance and is disposed in a manner that is consistent with the requirements of the substance it contained and the material of the package. If possible reuse or recycle packaging.

14. Transport Information

Land Transport Rule: Dangerous Goods 2005 - NZS 5433:2007
Transport according to NZS 5433 (Transport of Hazardous Substances on Land). Considered a dangerous good for transport.

UN number:	3077	**Proper shipping name:**	Environmentally Hazardous Substance, Solid, N.O.S. [Zinc Sulphate]
Class(es)	9	**Packing group:**	III
Precautions:	Marine pollutant.	**Hazchem code:**	3Z

IMDG

UN number:	3077	**Proper shipping name:**	Environmentally Hazardous Substance, Solid, N.O.S. [Zinc Sulphate]
Class(es)	9	**Packing group:**	III
Precautions:	Marine pollutant	**EmS**	F-A, S-F

IATA

UN number:	307	**Proper shipping name:**	Environmentally Hazardous Substance, Solid, N.O.S. [Zinc Sulphate]
Class(es)	9	**Packing group:**	III
Precautions:	Marine pollutant	**ERG Guide**	171

15. Regulatory Information

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002521, Animal Nutritional and Animal Care Products Group Standard 2020. All ingredients appear on the New Zealand Inventory of Chemicals NZIoC.

Specific Controls

Key workplace requirements are:	
SDS	To be available within 10 minutes in workplaces storing any quantity.
Inventory	An inventory of all hazardous substances must be prepared and maintained.
Packaging	All hazardous substances should be appropriately packaged including substances that have been decanted, transferred or manufactured for own use or have been supplied
Labelling	Must comply with the Hazardous Substances (Labelling) Notice 2017.
Emergency plan	Required if > 100kg is stored.
Certified handler	Not required.
Tracking	Not required.
Bunding & secondary containment	Required if > 100kg is stored.
Signage	Required if > 100kg is stored.
Location compliance certificate	Not required.
Flammable zone	Not required.
Fire extinguisher	Not required.

Note: The above workplace requirements apply if only this particular substance is present. The complete set of controls for a location will depend on the classification and total quantities of other substances present in that location.

Other Legislation

In New Zealand, the use of this product may come under the Resource Management Act and Regulations, the Health and Safety at Work Act 2015 and the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, local Council Rules and Regional Council Plans.

16. Other Information

Abbreviations

Approval Code	Approval HSR002521, Animal Nutritional and Animal Care Products Group Standard 2020 Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
EC_{50}	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
EPA	Environmental Protection Authority (New Zealand)
GHS	Globally Harmonised System of Classification and Labelling of Chemicals, 7th revised edition, 2017, published by the United Nations.
HAZCHEM Code	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
HSNO	Hazardous Substances and New Organisms (Act and Regulations)
IARC	International Agency for Research on Cancer
LEL	Lower Explosive Limit
LD_{50}	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC_{50}	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
NZIoC	New Zealand Inventory of Chemicals
STEL	Short Term Exposure Limit - The maximum airborne concentration of a chemical or biological agent to which a worker may be exposed in any 15 minute period, provided the TWA is not exceeded
STOT RE	System Target Organ Toxicity – Repeated Exposure
STOT SE	System Target Organ Toxicity – Single Exposure
TWA	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
UEL	Upper Explosive Limit
UN Number	United Nations Number
WES	Workplace Exposure Standard - The airborne concentration of a biological or chemical agent to which a worker may be exposed during work hours (usually 8 hours, 5 days a week). The WES relates to exposure that has been measured by personal monitoring using procedures that gather air samples in the worker's breathing zone.

References

Data	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).
Controls	EPA notices, www.epa.govt.nz, Health and Safety at Work (Hazardous Substances) Regulations 2017, www.legislation.govt.nz
WES	The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – www.worksafe.govt.nz.
Other References:	Suppliers SDS

Review

Date	**Reason for review**
December 2024	Not applicable – new SDS

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