

**1. Identification of Substance & Company**

**Product**

<b>Product name</b>	Digester
<b>Other names</b>	no other names
<b>Product codes</b>	NA
<b>HSNO approval</b>	HSR002571
<b>Approval description</b>	Fertilisers (Subsidiary Hazard) Group Standard 2020
<b>UN number</b>	NA
<b>DG class</b>	NA
<b>Proper Shipping Name</b>	NA
<b>Packaging group</b>	NA
<b>Hazchem code</b>	NA
<b>Uses</b>	Help improve soil aggregation, soil moisture capacity and nutrient mineralisation

**Company Details**

<b>Company</b>	<b>Biostart LTD</b>	<b>Biostart Brands PTY Ltd</b>
<b>Address</b>	17 Reta Crescent Kerepehi 3671 New Zealand	L1/109 Jessie St Armidale NSW 2350 Australia
<b>Telephone</b>	0800 116 229	1800 359 555
<b>Website</b>	biostart.co.nz	biostart.com.au

**New Zealand Emergency Telephone Number: 0800 764 766**  
**Australian Emergency Number: 13 11 26**

**2. Hazard Identification**

**Approval**

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO, Approval HSR002571, Fertilisers (Subsidiary Hazard) 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**

Eye irritation category 2  
Reproductive toxicity category 2  
STOT RE category 2

**Hazard Statements**

H320 - Causes eye irritation.  
H361 - Suspected of damaging fertility or the unborn child.  
H373 - May cause damage to organs through prolonged or repeated exposure.

**SYMBOLS**

**WARNING**



**Australian GHS Classification**

Eye irritation category 2  
STOT RE category 2

H320 - Causes eye irritation.  
H373 - May cause damage to organs through prolonged or repeated exposure.

### Precautionary Statements

<b>Prevention</b>	<p>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 vapours.                  P264 - Wash hands thoroughly after handling.                  P270 - Do not eat, drink or smoke when using this product.                  P273 - Avoid release to the environment.</p>
<b>Response</b>	<p>P280 - Wear protective gloves/protective clothing/eye protection.                  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                  P337+P313 - If eye irritation persists: Get medical advice/attention.                  P314 - Get medical advice/attention if you feel unwell.</p>
<b>Storage</b>	No storage Statement
<b>Disposal</b>	P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

### 3. Composition / Information on Ingredients

Component	CAS/ Identification	Conc (%)
Nonviable fermentation products	proprietary	>50%
Manganese sulphate monohydrate	7785-87-7	1-10%
Zinc sulphate	7733-02-0	1-10%
Urea	57-13-6	1-10%
Potassium nitrate	7757-79-1	1-10%
Boron sodium oxide, tetrahydrate	12280-03-4	0.1-1%
Ingredients not contributing to HSNO 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** Do NOT induce vomiting. Give a glass of water to drink. Contact a doctor.  
**Eye contact** If product gets in eyes, wash material from them with running water for several minutes. If symptoms persist, seek medical advice.  
**Skin contact** If skin irritation occurs: Get medical advice/ attention.  
**Inhaled** Generally, inhalation of vapours is unlikely to result in adverse health effects. If coughing, dizziness or shortness of breath is experienced, remove the patient to fresh air immediately. If patient is unconscious, place in the recovery position (on the side) for transport and contact a doctor.

#### 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 or water jet. Fight larger fires with water jet or alcohol resistant 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:** NA

**6. Accidental Release Measures**

<b>Containment</b>	If greater than 10000L 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.
<b>Emergency procedures</b>	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. Do not use sawdust. Prevent by whatever means possible any spillage from entering drains, sewers, or water courses. (If this occurs contact your regional council immediately).
<b>Clean-up method</b>	Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.
<b>Disposal</b>	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.
<b>Precautions</b>	Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation.

**7. Storage & Handling**

<b>Storage</b>	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.
<b>Handling</b>	Keep exposure to a minimum, and minimise the quantities kept in work areas. See section 8 with regard to personal protective equipment requirements.

**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<sup>3</sup> for respirable particulates and 10mg/m<sup>3</sup> for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA	WES-STEL
	Zinc compounds	Zinc dust: 10mg/m <sup>3</sup> Zinc oxide: 2mg/m <sup>3</sup> Zinc oxide: 0.1mg/m <sup>3</sup>	- - -
	Manganese sulphate monohydrate	(respirable)	-
	Borates	0.2mg/m <sup>3</sup> 0.02mg/m <sup>3</sup> (respirable) 5mg/m <sup>3</sup>	- - -

**Exposure Standards - Australia**

Australian Exposure Standards	Ingredient	WES-TWA	WES-STEL
	Zinc compounds	Zinc oxide dust: 10mg/m <sup>3</sup>	-
	Manganese sulphate monohydrate	1mg/m <sup>3</sup>	-
	Borates	5mg/m <sup>3</sup>	-

**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**

<b>General</b>	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.
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**Eyes**



Avoid contact with eyes. Use safety glasses and or chemical splash goggles if splashes are possible. Select eye protection in accordance with AS/NZS 1337.

**Skin**

Protective gloves and clothing are not normally necessary. However, it is prudent to wear gloves when handling chemicals in bulk or for an extended period of time.

**Respiratory**

A respirator when airborne concentrations approach the WES (section 8).

Respirator is not required under normal use. Ensure adequate natural ventilation. If product is being used in confined conditions, the use of a mask or respirator may be preferred.

**WES Additional Information**

Not applicable

**9. Physical & Chemical Properties**

<b>Appearance</b>	mild characteristic odour brown liquid
<b>Odour</b>	no data
<b>Odour Threshold</b>	no data
<b>pH</b>	3.2-4.0
<b>Freezing/melting point</b>	no data
<b>Boiling Point</b>	no data
<b>Flashpoint</b>	no data
<b>Flammability</b>	no data
<b>Upper &amp; lower flammable limits</b>	no data
<b>Vapour pressure</b>	no data
<b>Vapour density</b>	no data
<b>Specific gravity/density</b>	1.06-1.08
<b>Solubility</b>	completely soluble in water
<b>Partition coefficient</b>	no data
<b>Auto-ignition temperature</b>	no data
<b>Decomposition temperature</b>	no data
<b>Viscosity</b>	no data
<b>Particle Characteristics</b>	no data

**10. Stability & Reactivity**

<b>Stability</b>	Stable
<b>Conditions to be avoided</b>	Containers should be kept closed in order to avoid contamination. Keep from extreme heat and open flames.
<b>Incompatible groups</b>	Strong acids and bases, oxidisers.
<b>Substance Specific Incompatibility</b>	none known
<b>Hazardous decomposition products</b>	Oxides of carbon, sulphur
<b>Hazardous reactions</b>	none known

**11. Toxicological Information**

**Summary**

IF SWALLOWED: may cause gastrointestinal irritation.

IF IN EYES: may be irritating to the eye.

IF ON SKIN: may cause mild skin irritation.

IF INHALED: no effect known.

CHRONIC TOXICITY: repeated or prolonged exposure to manganese sulphate could result in effects to the lungs and central nervous system. Exposure to borates may cause reproductive effects.

**Supporting Data**

<b>Acute</b>	<b>Oral</b>	Using LD <sub>50</sub> 's for ingredients, the calculated LD <sub>50</sub> (oral, rat) for the mixture is >5,000 mg/kg. Data considered includes: Manganese sulphate monohydrate 782mg/kg (rat), Zinc sulphate 926mg/kg (mouse), Potassium nitrate: 1901 mg/kg (rat).
	<b>Dermal</b>	No evidence of dermal toxicity.
	<b>Inhaled</b>	No evidence of inhalation toxicity.
	<b>Eye</b>	The mixture is considered to be an eye irritant.
	<b>Skin</b>	The mixture is not considered to be a skin irritant.

<b>Chronic</b>	<b>Sensitisation</b> <b>Mutagenicity</b> <b>Carcinogenicity</b> <b>Reproductive / Developmental</b>	No ingredient present at concentrations > 0.1% is considered a sensitizer. No ingredient present at concentrations > 0.1% is considered a mutagen. No ingredient present at concentrations > 0.1% is considered a carcinogen. The mixture is considered to be a suspected reproductive or developmental toxicant, because at least one of the ingredients present in greater than 0.1% is suspected to be a reproductive or developmental toxicant (borates). Animal experiments have shown that ingestion of borates at high doses or over prolonged periods may affect the reproductive system in both males and females.
	<b>Systemic</b>	The mixture is considered to be a suspected target organ toxicant. Repeated or prolonged exposure to manganese sulphate could result in effects to the lungs and central nervous system.
	<b>Aggravation of existing conditions</b>	None known.

## 12. Ecological Data

### Summary

This mixture may be harmful towards aquatic organisms

### Supporting Data

<b>Aquatic</b>	Using EC <sub>50</sub> 's for ingredients, the calculated EC <sub>50</sub> for the mixture is between 1 and 100 mg/L. Data considered includes: Nonviable fermentation products no data, Zinc sulphate 98.77ug/L (96hr, Oncorhynchus mykiss), 0.09877mg/L (48hr, Daphnia hyalina), 0.02469mg/L (5d, Ditylum brightwellii Diatom).
<b>Bioaccumulation</b>	No data
<b>Degradability</b>	No data
<b>Soil</b>	No evidence of soil toxicity.
<b>Terrestrial vertebrate</b>	See acute toxicity.
<b>Terrestrial invertebrate</b>	Ni evidence of toxicity towards terrestrial invertebrates.
<b>Biocidal</b>	no data
<b>Environmental effect levels</b>	No EELs are available for this mixture or ingredients

## 13. Disposal Considerations

<b>Restrictions</b>	There are no product-specific restrictions, however, local council, resource consent and state disposal conditions may apply, including requirements of trade waste consents.
<b>Disposal method</b>	In New Zealand 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. In Australia disposal of this product must comply with the requirements of state and local disposal regulations. The substance must be treated and therefore rendered non-hazardous before discharge to the environment.
<b>Contaminated packaging</b>	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

There are no specific restrictions for this product (not a dangerous good).

<b>UN number:</b>	NA	<b>Proper shipping name:</b>	NA
<b>Class(es)</b>	NA	<b>Packing group:</b>	NA
<b>Precautions:</b>	NA	<b>Hazchem code:</b>	NA

### IMDG

<b>UN number:</b>	NA	<b>Proper shipping name:</b>	Not regulated
<b>Class(es)</b>	NA	<b>Packing group:</b>	NA
<b>Precautions:</b>	NA	<b>EmS</b>	NA

**IATA**

<b>UN number:</b>	NA	<b>Proper shipping name:</b>	Not regulated
<b>Class(es)</b>	NA	<b>Packing group:</b>	NA
<b>Precautions:</b>	NA	<b>ERG Guide</b>	NA

**15. Regulatory Information**

**NZ regulations**

This product is an approved substance under the Hazardous Substances and New Organisms Act (HSNO). Approval code: HSR002571, Fertilisers (Subsidiary Hazard) Group Standard 2020. All ingredients appear on the 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 > 10000L is stored.
Certified handler	Not required.
Tracking	Not required.
Bunding & secondary containment	Required if > 10000L is stored.
Signage	Required if > 10000L 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.

**Australian regulations**

<b>Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP)</b>	Not scheduled
<b>Applicable prohibitions and notifications/licensing requirements</b>	Not listed
<b>Agricultural and Veterinary Chemicals Act</b>	Not listed
<b>Listing in the Australian Inventory of Chemical Substances (AICS)</b>	Magnesium sulfate, heptahydrate - IMAP - Tier I - Human Health Manganous sulfate, monohydrate - IMAP - Tier II - Human Health
<b>Additional information</b>	Not applicable

**16. Other Information**

**Abbreviations**

<b>Approval Code</b>	Approval HSR002571, Fertilisers (Subsidiary Hazard) Group Standard 2020 Controls, EPA. <a href="http://www.epa.govt.nz">www.epa.govt.nz</a>
<b>AICS</b>	Australian Inventory of Chemical Substances
<b>CAS Number</b>	Unique Chemical Abstracts Service Registry Number
<b>EC<sub>50</sub></b>	Ecotoxic Concentration 50% – concentration in water which is fatal to 50% of a test population (e.g. daphnia, fish species)
<b>EPA</b>	Environmental Protection Authority (New Zealand)

<b>GHS</b>	Globally Harmonised System of Classification and Labelling of Chemicals, 7 <sup>th</sup> revised edition, 2017, published by the United Nations.
<b>HAZCHEM Code</b>	Emergency action code of numbers and letters that provide information to emergency services, especially fire fighters
<b>HSNO</b>	Hazardous Substances and New Organisms (Act and Regulations)
<b>IARC</b>	International Agency for Research on Cancer
<b>LEL</b>	Lower Explosive Limit
<b>LD<sub>50</sub></b>	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
<b>LC<sub>50</sub></b>	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
<b>NZIoC</b>	New Zealand Inventory of Chemicals
<b>STEL</b>	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
<b>STOT RE</b>	System Target Organ Toxicity – Repeated Exposure
<b>STOT SE</b>	System Target Organ Toxicity – Single Exposure
<b>TWA</b>	Time Weighted Average – generally referred to WES averaged over typical work day (usually 8 hours)
<b>UEL</b>	Upper Explosive Limit
<b>UN Number</b>	United Nations Number
<b>WES</b>	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**

<b>Data</b>	Unless otherwise stated comes from the EPA HSNO chemical classification information database (CCID).
<b>Controls</b>	EPA notices, <a href="http://www.epa.govt.nz">www.epa.govt.nz</a> , Health and Safety at Work (Hazardous Substances) Regulations 2017, <a href="http://www.legislation.govt.nz">www.legislation.govt.nz</a>
<b>WES</b>	The latest NZ Workplace Exposure Standards, published by WorkSafe NZ and available on their web site – <a href="http://www.worksafe.govt.nz">www.worksafe.govt.nz</a> .
<b>ES</b>	Workplace Exposure standards for airborne contaminants – Safework Australia.
<b>Other References:</b>	Suppliers SDS, EU ECHA, ingredients SDS's, ChemIDplus

**Review**

<b>Date</b>	<b>Reason for review</b>
June 2019	Not applicable – new SDS
December 2019	Group standard
July 2023	HSNO to GHS 7, new address, logo
May 2024	New address

**Disclaimer**

This SDS was prepared by Datachem LTD and is based on our current state of knowledge, including information obtained from suppliers. The SDS is given in good faith and constitutes a guideline (not a guarantee of safety). The level of risk each substance poses is relevant to its properties (as summarised in the SDS) AND HOW THE SUBSTANCE IS USED. While guidelines are given for personal protective equipment, such precautions must be relevant to the use. The likely GHS 7 classifications for this SDS have been estimated based on general information from the supplier (e.g., hazard, toxicological). This SDS is copyright Datachem and must not be copied, edited or used for other than intended purpose. To contact the SDS author, email [info@datachem.co.nz](mailto:info@datachem.co.nz) or phone: +64 21 1040951.

