

1. Identification of Substance & Company

Product

Product name	Trace Element Mix A+
Product codes	TE A+
HSNO approval	HSR002571
Approval description	Fertilisers (Subsidiary Hazard) Group Standard 2020
UN number	3077
DG class	9
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, n.o.s. (contains zinc sulphate, copper sulphate)
Packaging group	III
Hazchem code	2Z
Uses	Plant Fertiliser - Essential micronutrients for Hydroponic crops

Company Details

Company	Chemtest Laboratories LTD
Physical Address	PO Box 73, Drury 2247 Auckland, New Zealand
Telephone	+64 9 274 5336
Fax	+64 9 274 0555

Emergency Telephone Number: 0800 764 766 (POISON CENTRE)

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

Acute Toxicity Category 4 (oral)
Eye Corrosive Category 1
Skin Sensitiser Category 1
Reproductive toxicity Category 2
STOT RE Category 2
Chronic aquatic Category 1
Acute Aquatic Category 1

Hazard Statements

H302 - Harmful if swallowed.
H318 - Causes serious eye damage.
H317 - May cause an allergic skin reaction.
H361 - Suspected of damaging fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.
H400 - Very toxic to aquatic life.

SYMBOLS



HSNO Classes

6.1D (oral)
8.3A
6.5B
6.8B
6.9B
9.1A (chronic)
9.1A (acute)

Hazard Statements

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H318 - Causes serious eye damage.
H317 - May cause an allergic skin reaction.
H361 - Suspected of damaging fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.
H400 - Very toxic to aquatic life.

Precautionary Statements

- P101 - If medical advice is needed, have product container or label at hand.
 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.
 P264 - Wash hands thoroughly after handling.
 P270 - Do not eat, drink or smoke when using this product.
 P272 - Contaminated work clothing should not be allowed out of the workplace.
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves/eye protection/face protection.
 P281 - Use personal protective equipment as required.
 P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
 P330 - Rinse mouth.
 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.
 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.
 P308+P313 - IF exposed or concerned: Get medical advice/ attention.
 P391 - Collect spillage.
 P405 - Store locked up.
 P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Composition / Information on Ingredients

Component	CAS/ Identification	Conc (%)
Iron Chelate EDTA	15708-41-5	35-60%
Iron Chelate DTPA	12389-75-2	1-10%
Manganese Sulphate	7785-87-7	5-10%
Manganese Chelate EDTA	15375-84-5	5-10%
Zinc Chelate	14025-21-9	2-6%
Zinc Sulphate	7733-02-0	2-6%
Boric Acid	10043-35-3	5-20%
Copper Sulphate	7758-98-7	0.5-2.0%
Sodium Molybdate	7631-95-0	0.5-2.0%

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: Call a POISON CENTRE or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting. Give a glass of water to drink.

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. Wash contaminated clothing before reuse.

Inhaled

Generally, inhalation dusts 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, foam, fog sprays.
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	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	Sweep 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 dusts. Work up wind or increase ventilation.

7. Storage & Handling

Storage	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/m³ for respirable particulates and 10mg/m³ for inhalable particulates when limits have not otherwise been established.

NZ Workplace Exposure Stds	Ingredient	WES-TWA*	WES-STEL
	Iron chelate EDTA	1mg/m ³ as Fe	data unavailable
	Iron chelate DTPA	1mg/m ³ as Fe	data unavailable
	Manganese sulphate monohydrate	0.02mg/m ³ (respirable)	data unavailable
	Manganese chelate EDTA	0.02mg/m ³ (respirable)	data unavailable
	Zinc sulphate	0.1mg/m ³	data unavailable
	Boric Acid see Borates:		
	Borates, tetra, sodium salts:		
	anhydrous: 1mg/m ³	1mg/m ³	data unavailable
	decahydrate: 5mg/m ³	5mg/m ³	data unavailable
	pentahydrate 1mg/m ³	1mg/m ³	data unavailable
	Copper Sulphate	1.0 mg/m ³ (as Cu dust)	data unavailable
	Sodium molybdate	5mg/m ³ (as Mo)	data unavailable

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 repeated or prolonged skin contact. Wear overalls, rubber boots and impervious gloves. Replace frequently. Gloves should be checked for tears or holes before use. Remove protective clothing and wash exposed areas with soap and water prior to eating, drinking or smoking. Wash hands after handling.

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 dust/mist 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	fine granules
Odour	mild odour
pH	no data
Vapour pressure	no data
Viscosity	no data
Boiling point	no data
Volatile materials	no data
Freezing / melting point	no data
Solubility	soluble in water
Specific gravity / density	no data
Flash point	non flammable
Danger of explosion	not explosive
Auto-ignition temperature	no data
Upper & lower flammable limits	no data
Corrosiveness	Corrosive to Eyes

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	None known
Substance Specific Incompatibility	None known
Hazardous decomposition products	None known
Hazardous reactions	None known

11. Toxicological Information

Summary

IF SWALLOWED: Harmful if swallowed. May irritate gastrointestinal tract. Ingestion can result in vomiting.
 IF IN EYES: May cause stinging or redness. Dust may cause eye damage.
 IF ON SKIN: Allergic skin reaction may occur for sensitised individuals (copper sulphate).
 IF INHALED: Dust may be irritating to respiratory tract.
 CHRONIC EXPOSURE: may affect liver, respiratory tract, nosebleeds, dermatitis, headache, lethargy, mental and central nervous system effects, damage to kidneys and lungs.

Supporting Data

Acute	Oral	Using LD ₅₀ 's for ingredients, the Acute Toxicity Estimate (ATE) (oral) for the mixture is between 300 and 2,000 mg/kg. Data considered includes: Iron EDTA >2000mg/kg, Sodium hydrogen ferric diethylenetriaminepentacetate 2000mg/kg bw (rat), Manganese sulphate monohydrate 782mg/kg (rat), Disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']manganate(2-) 2000mg/kg bw (rat), Zinc sulphate 926mg/kg (mouse), Boric Acid 2668 mg/kg (mouse), Copper Sulphate 125mg/kg (rabbit), Sodium molybdate 4000 mg/kg (rat).
	Dermal	Using LD ₅₀ 's for ingredients, the Acute Toxicity Estimate (ATE) (dermal) for the mixture is >5000 mg/kg. Data considered includes: Iron EDTA 2000mg/kg (rabbit).
	Inhaled	Using LD ₅₀ 's for ingredients, the Acute Toxicity Estimate (ATE) (inhalation) for the mixture is >5mg/L/4h. Data considered includes: Iron EDTA >2.75mg/L (rat), Sodium hydrogen ferric diethylenetriaminepentacetate 5.08mg/L (air, rat), Disodium [[N,N'-ethylenebis[N-(carboxymethyl)glycinato]](4-)-N,N',O,O',ON,ON']manganate(2-) 5.16mg/L (air, rat).
	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 not considered to be a skin irritant.
Chronic	Sensitisation	The mixture is considered to be a contact sensitizer, because at least one of the ingredients (copper sulphate) present in greater than 0.1% is known to be a contact sensitizer.
	Mutagenicity	No ingredient present at concentrations > 0.1% is considered a mutagen.
	Carcinogenicity	No ingredient present at concentrations > 0.1% is considered a carcinogen.
	Reproductive / Developmental Systemic	The mixture is considered to be a suspected reproductive or developmental toxicant. Borates are considered suspected reproductive/developmental toxicants. The mixture is considered to be a suspected target organ toxicant. Copper sulphate may affect the liver and lungs. Zinc sulphate may affect the gastrointestinal system, affect the blood and nervous system. Repeated or prolonged exposure to manganese sulphate could result in effects to the lungs and central nervous system
	Aggravation of existing conditions	None known.

12. Ecological Data

Summary

This mixture is considered very toxic towards aquatic organisms with long lasting effects.

Supporting Data

Aquatic	Using EC ₅₀ 's for ingredients, the calculated EC ₅₀ for the mixture is <1mg/L. Data considered includes: Manganese sulphate monohydrate 61mg/l (72h, algae), Zinc sulphate 98.77ug/L (96hr, Oncorhynchus mykiss), 0.09877mg/L (48hr, Daphnia hyalina), 0.02469mg/L (5d, Ditylum brightwellii Diatom), Copper Sulphate 0.0028mg/L (acute, 96hr, Fathead minnow), 0.0014mg/L (48hr, waterflea), 0.005mg/L (72hr, seawater algae).
Bioaccumulation	No data
Degradability	No data
Soil	EPA has not classified the mixture as ecotoxic in the soil environment. The soil toxicity value for the mixture is ≥ 100 mg/kg.
Terrestrial vertebrate	See acute toxicity.
Terrestrial invertebrate	No evidence of ecotoxicity 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. (contains zinc sulphate, copper sulphate)
Class(es)	9	Packing group:	III
Precautions:	Ecotoxic.	Hazchem code:	2Z

15. Regulatory Information

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 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 HSR002571, Fertilisers (Subsidiary Hazard) Group Standard 2020 Controls, EPA. www.epa.govt.nz
CAS Number	Unique Chemical Abstracts Service Registry Number
EC₅₀	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, 7 th 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
LD₅₀	Lethal Dose 50% – dose which is fatal to 50% of a test population (usually rats).
LC₅₀	Lethal Concentration 50% – concentration in air which is fatal to 50% of a test population (usually rats)
NZIoC	New Zealand Inventory of Chemicals
MSDS (SDS)	Material Safety Data Sheet (or Safety Data Sheet)
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, EU ECHA, ingredients SDS's, ChemIDplus

Review

Date	Reason for review
July 2021	Not applicable – new SDS

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 HSNO and 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 or phone: +64 9 940 30 80.

