

1. Identification

Product identifier:	V ¹² -Shoot	
Synonyms:	None	
Company product code or Supplier code:	N/A	
Fertiliser Group:	2	
RSA Reg. No. (Act No. 36 of 1947):	B4510	
Supplier:	Andermatt Madumbi (Pty) Ltd Suite 105, 24 Hilton Ave, Hilton KZN 3245, South Africa Telephone: +27 (0) 33 342 3984 (09:00 to 16:00) Email address (technical): support@andermatt.co.za	
Recommended use:	Fertiliser / Bio-stimulant	
Restrictions on use:	Do not use for any other purpose than described on the product label	
Emergency numbers:	+27 (0) 33 342 3984 +27 (0) 82 446 8946	(09:00 to 16:00) (24 H)

2. Hazards identification

Classification of this liquid mixture:	Skin irritation, Category 3. Eye irritation, Category 2B.	
Signal word:	WARNING	
Hazard statements:	CAUSES MILD SKIN IRRITATION CAUSES EYE IRRITATION	H316 H320
	(No signal required)	
Precautionary statements:		
	Wear protective gloves/protective clothing/eye protection.	P280
	Do not eat, drink, or smoke when using this product.	P270
	Wash hands and face thoroughly after handling. Do not touch eyes.	P264+P265
	IF ON SKIN: Wash with plenty of water and soap.	P302+P352
	IF IN THE EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	P305+P351+P338
	If skin irritation or rash occurs, or if eye irritation persists: Get medical help.	P333+P337+P317
	Dispose of contents and/or container in accordance with regulations.	P501
	Refer to manufacturer or supplier for information on disposal, recovery or recycling.	P503

3. Composition/information on ingredients

Component	CAS number	%
Non-hazardous co-formulants	None allocated	8
Magnesium sulphate:	7487-88-9	5
Manganese sulphate:	7785-87-7	1.5
Iron sulphate:	7720-78-7	4
Other vitamins:	Confidential	< 1
Other metal ions:	Confidential	< 1
Other active substances:	Confidential	< 1
Total hazardous elements:	Various	< 0.05
Water:	7732-18-5	79

4. First aid measures

Inhalation:	Inhalation is not an expected route of exposure
Eye contact:	Most important acute symptoms/effects: eye irritation, redness may occur. IF IN THE EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Skin contact:	Most important acute symptoms/effects: skin irritation, redness may occur. IF ON SKIN: Wash with plenty of water.
Ingestion:	Ingestion of significant amounts is not considered a likely route of exposure. IF SWALLOWED: If some of the mixture gets in your mouth, rinse cautiously with water for several minutes. Get medical help if you feel unwell.
Most important delayed symptoms/effects after exposure:	None known
Indication of immediate medical attention:	If skin irritation or rash occurs, or if eye irritation persists, get medical help. Special treatment is not considered necessary. Damage to health is not expected. Pre-existing conditions may be aggravated, such as eye disorders or skin disorders.
Protection of first responders:	Avoid undue contact with the mixture. Wear gloves and a mask to prevent transmission of pathogens.

5. Firefighting measures

Appropriate/suitable extinguishing media:	The product is an aqueous mixture and does not burn. Water spray, foam, carbon dioxide (CO ₂) or dry powder may be used but select extinguishing media that is appropriate for local circumstances and the surroundings.
Inappropriate extinguishing media:	None known.
Nature of hazardous combustion products:	None expected.
Other hazards arising from the mixture:	None known. (There is no direct explosion hazard and no sensitivity to mechanical impact or to static discharge for this mixture).
Special protective equipment:	Avoid breathing dust, vapours, and combustion by-products from other chemicals in the vicinity of the fire. Use self-contained breathing apparatus and complete protective clothing. Do not attempt to act without suitable protective equipment.
Precautions and/or protective actions:	Move containers from the fire area if it can be done without risk. Water spray may be used to cool down the containers, but only after considering other material in the vicinity that may pose a hazard. Stay upwind and keep out of low areas. Take precautions to prevent extinguishing media contaminating surface water or ground water.

6. Accidental release measures

Distinguish between large or small spills, leaks, or releases.

Personal precautions:	Avoid contact with skin and eyes. Wash hands thoroughly after handling. Do not touch eyes. Do not eat, drink, or smoke during clean-up operations.
Protective equipment:	Wear protective gloves/protective clothing/eye protection.
Emergency actions and procedures:	No special emergency actions or procedures are required.
Environmental precautions:	Avoid release to the environment. Prevent spills from entering storm sewers or drains. Report any release to the appropriate authorities.

Methods and materials for containment and cleaning up:

Move intact containers from the spill area. The product is a water miscible liquid. Stop leaks if it can be done safely and prevent run-off as far as possible.

Small spills: Dilute spills with water, if necessary, and mop up. Place in an appropriate waste disposal container.

Large spills: Prevent entry into sewers, water courses, basements, or confined areas by diking if possible. Wash the spillage into an effluent treatment plant. Alternatively contain and collect the spillage, either by mopping up or with absorbent material like dry sand or saw dust, and transfer to containers for disposal. Flush the area with water if appropriate.

Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Precautions for safe handling: Wear protective gloves/protective clothing/eye protection, such as nitrile rubber gloves, safety glasses and long-sleeved clothing.
Do not eat, drink, or smoke when using this product.
Do not touch eyes. Wash hands and face thoroughly after handling.

Conditions for safe storage: Keep containers closed and upright to prevent leakage.
Store out of direct sunlight.
Store in a facility designed to contain liquid spills.
Store separately from any food, feed, or drinks.
Keep out of reach of children and uninformed persons.



Any incompatibilities: No incompatibilities are known. The mixture is compatible with most agricultural remedies.

8. Exposure controls/personal protection

No occupational exposure limit values have been established on this mixture.

No biological limit values are available for this mixture. Guideline values for individual essential elements such as Fe and Mn in drinking water are less than 1 mg/litre, while the maximum allowable levels for hazardous elements (As, Hg, Pb, Co, Cd, Cr, Ni, Al, Cu, Zn, Se) are much lower.

Appropriate engineering controls include good general ventilation. No other control parameters are considered necessary.

Wear personal protective equipment (protective gloves/protective clothing/eye protection/appropriate footwear) when handling the mixture.



Other individual protection measures: DO NOT deliberately ingest the mixture, even when diluted, as the levels of elements in the mixture are higher than the guideline values or maximum allowable levels for drinking water. Regular ingestion will cause serious health problems!

9. Physical and chemical properties

Physical state	Liquid
Clarity:	Cloudy
Colour:	Dark brown
Odour:	Slight meaty odour
Odour threshold:	Not known
Melting point/freezing point:	< 0 °C *
Boiling point (or initial point and range):	> 100 °C *
Flammability (gases, liquids, solids):	Non-flammable
Lower and upper explosion limits:	None
Lower and upper flammability limits:	None
Flash point:	Non-combustible
Autoignition temperature:	Not applicable
Decomposition temperature:	Not known
pH, neat:	4.68
pH, aqueous dilution (10%):	5.76
Dissociates in water, pKa:	Most of the components dissociate; pKa not known
Kinematic viscosity (of liquids) in mm ² /s:	Not known
Solubility in water:	Miscible with water
Solubility in a specified non-polar solvent:	Not miscible with non-polar solvents
Partition coefficient (n-octanol/water):	Not known
Vapour pressure (at 25 °):	< 23.8 torr (mmHg) or < 3.17 kPa *
Density and/or relative density:	1.16 @ 20°C
Relative vapour density:	Not known
Particle characteristics:	Not applicable
Evaporation rate:	Similar* to water

* Based on the values for water, which is the main component of the mixture.

10. Stability and reactivity

No test data is available on the reactivity of the mixture. Most of the components dissociates into simple cations (e.g., iron, magnesium) and anions (e.g., sulphate, ascorbate). The mixture is not an oxidiser and is not combustible.

The mixture is chemically stable when properly stored and handled. The product may settle out over time and should therefore be shaken well before use.

No stabilisers were added or are required.

Changes in physical appearance e.g., settling, has no safety significance.

There is no possibility of hazardous reactions such as polymerisation.

Do not allow the mixture to heat up excessively. Pressure, shock, static discharge, and vibrations have no known effect.

There are no known incompatible materials.

The mixture is not expected to produce hazardous decomposition products when used, stored, or heated.

11. Toxicological information

Routes of exposure: Inhalation of the mixture or its vapours is not a likely route of exposure, neither is ingestion (unless deliberate). Exposure to the mixture can occur through skin and eye contact.

Symptoms related to the physical, chemical, and toxicological characteristics of the mixture include irritation and redness upon skin contact. Eye contact can cause irritation, redness, and excessive tearing (epiphora).

Effects of exposure: Apart from irritation, no data on immediate, delayed, or chronic effects from short- or long-term skin or eye exposure are available. Deliberate and regular ingestion of significant amounts of the mixture, even when diluted, are expected to cause serious health effects due to over-exposure to Mg, Fe, Mn, and other metal cations.

Hazard class	Hazard category	Rationale for classification
Acute toxicity, oral:	Not classified	Calculated from available ingredient data.
Acute toxicity, dermal:	Not classified	Calculated from available ingredient data.
Acute toxicity, inhalation:	Not classified	Calculated from available ingredient data.
Skin corrosion/irritation:	Cat. 3 – causes mild irritation	Calculated from available ingredient data.
Serious eye damage/irritation:	Cat. 2B – causes eye irritation	Calculated from available ingredient data.
Respiratory or skin sensitisation:	Not classified	Based on available ingredient data.

Germ cell mutagenicity:	Not mutagenic	Based on available ingredient data.
Carcinogenicity:	Not carcinogenic	Based on available ingredient data.
Reproductive toxicity:	None expected	Based on available ingredient data.
STOT single exposure:	Not classified	Calculated from available ingredient data.
STOT repeated exposure:	Not classified	Calculated from available ingredient data.
Aspiration hazard:	Classification not possible	No data available

12. Ecological information

Acute toxicity for freshwater algae:	Not classified	Calculated from available ingredient data.
Toxicity for other aquatic plants:		No data available
Acute (short-term) toxicity for fish:	Not classified	Calculated from available ingredient data.
Acute toxicity for crustaceans:	Not classified	Calculated from available ingredient data.
Chronic toxicity for fish:	Not classified	Calculated from available ingredient data.
Toxicity for birds:	Not expected	Based on available ingredient data.
Toxicity for earthworms:	Not expected	Based on available ingredient data.
Toxicity for terrestrial plants:	Not expected	Based on available ingredient data.
Toxicity for honeybees:	Not expected	Based on available ingredient data.
Toxicity for soil micro-organisms:	Not expected	Based on available ingredient data.
Possible impact on sewage treatment:	Not expected	Based on available ingredient data.
Persistence and degradability:	Not persistent	Based on available ingredient data.
Bio-accumulative potential:	No potential expected	Based on available ingredient data.
Mobility in soil:	Very mobile	Based on available ingredient data.
Environmental fate:	Disperses quickly	Based on available ingredient data.
Ozone depletion potential:	None	Does not contain halocarbon molecules
Photochemical ozone creation potential:		No data available
Endocrine disrupting potential:	None expected	Based on available ingredient data.
Climate change potential:	None expected	Based on available ingredient data.
Other adverse effects:	None expected	

13. Disposal considerations

Avoid release to the environment. Dispose of waste residues responsibly as low-hazard chemical waste through a licensed waste removal company.

Dispose of the container by rinsing it properly. Do not re-use. Destroy mechanically and dispose of as ordinary waste through a licensed waste removal company.

Refer to the manufacturer or supplier for information on recovery or recycling.

Refer to the manufacturer or supplier for options on reclamation.

Refer to manufacturer or supplier for information on disposal of unused material.

The physical/chemical properties of the product should have no significant effect on disposal procedures.

The product consists mainly of water and no special precautions for incineration are necessary

There are no special precautions for landfill, except to be aware that most of the components of the mixture are soluble in water and soil mobility is high. These components occur naturally and are of no environmental concern.

There is no other relevant information.

14. Transport information

UN number: None. Not classified as dangerous in the context of transport regulations.

UN proper shipping name: Not applicable.

UN packing group number: Not applicable.

UN transport hazard class(es): Not applicable.

A known marine pollutant (IMDG Code)? Not a marine pollutant.

A known severe marine pollutant? Not a marine pollutant.

Environmentally hazardous, ADR? Not classified as dangerous in the context of transport regulations.

Environmentally hazardous, RID? Not classified as dangerous in the context of transport regulations.

Environmentally hazardous, ADN? Not classified as dangerous in the context of transport regulations.

Transport in bulk by sea, IMO? Not classified as dangerous in the context of transport regulations.

There are no special precautions which a user needs to be aware of or needs to comply with.

15. Regulatory information

Relevant safety regulations:	Regulations for hazardous chemical agents 2021, Department of Employment and Labour (March 2021).
Relevant health regulations:	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).
Relevant environmental regulations:	The National Environmental Management Act, 107 of 1998 (NEMA). Guidelines on the administration of incidents, as described in section 30 of the NEMA, Department of Environmental Affairs (2019).
Subject to the Montreal Protocol?	No.
Subject to the Stockholm Convention?	No.
Subject to the Rotterdam Convention?	No.
Subject to any prohibitions?	No.
Subject to any restrictions?	No.

16. Other information

SDS identification or reference number: 013

Date of the previous revision of this SDS: Not dated. Previous revision number: Not numbered.

There is no additional information relevant to the material's nature or use, or any other relevant information.

Abbreviations used:

- AND means European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
- ADR means Agreement concerning the International Carriage of Dangerous Goods by Road.
- CAS means Chemical Abstract Service.
- Cat. Means Category.
- GHS means Globally Harmonised System of Classification and Labelling of Chemicals.
- IMDG Code means International Maritime Dangerous Goods Code.
- IMO means International Maritime Organisation.
- NEMA means National Environmental Management Act.
- RID means Regulations concerning the International Carriage of Dangerous Goods by Rail.
- SDS means safety data sheet.
- STOT means specific target organ toxicity.
- UN means United Nations.

This safety data sheet was compiled in compliance with the following regulations and guidelines:

- Regulations for hazardous chemical agents 2021, Department of Employment and Labour (March 2021).
- The globally harmonised system of classification and labelling of chemicals (GHS), 9th Revised Edition, United Nations (2021).
- Globally harmonised system of classification and labelling of chemicals (GHS), SANS 10234:2019, Ed. 2.00 (2019).