

# SAFETY DATA SHEET

## SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### Product identifier:

Identification as on the label/Trade name: **Micros Z**

### Relevant identification uses of the substance and uses advised against:

Identified uses: **Biological fertilizer / foliar feed**

Uses advised against: Use only as directed.

### Details of the supplier of the Safety Data Sheet:

Company name: Zylem Pty Ltd

Address: Unit 20, 3 on Crescent, Cascades Crescent, Chase Valley, Pietermaritzburg, 3201, South Africa  
Telephone : +27 (33) 347 2893  
Emergency telephone No. : +27 (33) 3472893  
E-mail : [admin2@zylemsa.co.za](mailto:admin2@zylemsa.co.za)  
Website : [www.zylemsa.co.za](http://www.zylemsa.co.za)

## SECTION 2. HAZARD IDENTIFICATION

### Classification of the substances or mixture

The mixture is classified according to

SANS 10234:2008, Regulation EC 1272/2008 [EU-GHS/CLP]	
Hazard classes/Hazard categories	Hazard statement
Skin Irritation (Category 2)	Causes skin irritation
Skin Irritation (Category 2)	May cause an allergic skin reaction.
Eye Damage (Category 1)	Causes serious eye damage.
Respiratory Sensitization (Category 1)	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Carcinogenicity (Category 1B)	May cause cancer
Reproductive (Category 1B)	May damage fertility or the unborn child.
STOT RE (Category 2)	Causes damage to organs through prolonged or repeated exposure
AQUATIC (Category 2)	Toxic to aquatic life with long lasting effects

*For full text of H statements see section 16*

### The most important adverse effects

The most important adverse physiochemical effects: None.

The most important adverse human health effects: None.

### Label elements

Hazard pictograms:



Signal Word: DANGER

Hazard Statements:

- H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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H350	May cause cancer.
H360	May damage fertility or the unborn child.
H373	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

**Precautionary Statements:** P203 Obtain, read and follow all safety instructions before use. P260 Do not breathe dust/fume/gas/mist/vapors/spray. P264+P265 Wash hands and face thoroughly after handling. Do not touch eyes. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection. P284 In case of inadequate ventilation wear respiratory protection. P302+P352 IF ON SKIN: wash with plenty of water. P333+P317 If skin irritation or rash occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately. P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P317 Get emergency medical help. P318 If exposed or concerned, get medical advice. P391 Collect Spillage. P405 Store locked up.

**Special labelling of certain mixtures:** None

**Other hazards:** None

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/Mixture:** Mixture

**Ingredients:**

Substance name (IUPAC/EC)	CAS –No.	Concentration % by weight	Classification
	EC-No.		EC1272/2008
Manganese Sulphate	10034-96-5	10-20%	STOT RE (Category 2): H373 Aquatic Chronic (Category 2): H411
Iron Sulphate Heptahydrate	7782-63-0	3-5 %	Acute Toxicity Oral (Category 4): H302 Skin Irritation (Category 2): H315 Eye Irritation (Category 2): H319
Boric Acid	10043-35-3	5-7 %	Reproductive Toxicity (Category 1B): H360FD
Copper Sulphate	7758-98-7	3-5 %	Acute Toxicity Oral (Category 4): H302 Skin Irritation (Category 2): H315 Eye Irritation (Category 2): H319 Aquatic Acute (Category 1): H400 Aquatic Chronic (Category 1): H410
Zinc Sulphate	7446-19-7	6-10 %	Acute Toxicity Oral (Category 4): H302 Eye Damage (Category 1): H318 Aquatic Acute (Category 1): H400 Aquatic Chronic (Category 1): H410
Cobalt Sulphate	10026-24-1	>1%	Acute Toxicity Oral (Category 4): H302 Skin Sensitization (Category 1): H317 Respiratory Sensitization (Category 1): H334 Germ Cell Mutagenicity (Category 2): H341 Carcinogenicity (Category 1B): H350 Reproductive Toxicity (Category 1B): H360 Aquatic Acute (Category 1): H400 Aquatic Chronic (Category 1): H410
Fulvic Acid	479-66-3	3-5%	Skin Irritation (Category 2): H315

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			Eye Irritation (Category 2): H319
Citric Acid	77-92-9	>1%	Eye Irritation (Category 2): H319 STOT SE (Category 3): H335

For full text of H statements see section 16

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4. FIRST AID MEASURES

### Description of first aid measures:

#### General advice

Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.

#### In case of inhalation:

Move to fresh air. Keep patient warm and at rest. When symptoms persist or in all cases of doubt seek medical advice.

#### In case of skin contact:

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

#### In case of eye contact:

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

#### In case of ingestion:

Rinse mouth. Do NOT induce vomiting. Call a physician or poison control centre if feeling unwell or concerned.

### Indication of any immediate medical attention and special treatment needed:

Treat symptomatically. Gastric lavage is not normally required. If a significant amount (more than a mouthful) has been ingested, administer activated charcoal and sodium sulphate. There is no specific antidote.

## SECTION 5. FIRE -FIGHTING MEASURE

### Extinguisher media:

**Suitable extinguisher media:** Water spray, carbon dioxide (CO<sub>2</sub>), foam, sand.

**SMALL FIRE:** See above.

**LARGE FIRE:** See above.

**Unsuitable extinguishing media:** Do not use high volume water jet, due to contamination risk.

**Specific hazards arising from the mixture:** In the event of fire the following may be released: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride (HCl)

### Specific extinguishing methods:

Remove spectators from surrounding area. Isolate the fire area and evacuate all personnel downwind of the fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Keep upwind. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Do not use high volume water jet, due to contamination risk. Do not scatter the burning material. Water can be used to cool unaffected containers but must be contained for later disposal. Contain fire control agents for later disposal. Avoid pollution of waterways by run-off from the site. Decontaminate personal protective equipment and firefighting equipment after use.

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**Advice for fire-fighters:** Wear NIOSH/MSHA approved self-contained breathing apparatus and full protective gear. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

## SECTION 6. ACCIDENTAL RELEASE

### **Personal precautions, protective equipment and emergency procedures:**

**For non-emergency personnel:** Evacuate personnel to safe areas. Keep people away from and upwind of spill/ leak.

**For emergency responders:** Wear personal protective equipment. Unprotected persons must be kept away.

**Protective equipment:** Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill.

**Emergency procedures:** Alert fire-fighting personnel, evacuate unprotected personal and animals

### **Environmental precautions:**

Prevent spilled product from entering sewers, waterways or ground water. This product is classified to be toxic to aquatic organisms with long lasting effects in the aquatic environment. Any spillages or uncontrolled discharges into watercourses should be reported immediately to the police and the Department of Water/Environmental Affairs.

### **Methods and materials for containment and cleaning up:**

#### **Material for containment and cleaning up:**

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Clean contaminated floors and objects thoroughly, observing environmental regulations. Collect and transfer the product into a properly labelled and tightly closed container. Do not place spilled material back in original container. Do not re-use spill material. Do not flush spilled material or washings into drains or waterways. Clean contaminated floors and objects thoroughly, observing environmental regulations. See section 13 for disposal considerations.

**For small spills** Clean and place in appropriate waste disposal container. Follow local and regional authority requirements.

**For large spills** Clean and place in appropriate waste disposal container. Follow local and regional authority requirements.

### **Reference to other sections:**

See section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See section 13 for information on disposal.

### **Additional information:**

None.

## SECTION 7. HANDLING AND STORAGE

### **Precautions for safe handling:**

Immediately clean up spills that occur during handling. Keep containers closed when not in use. Use with adequate ventilation. Avoid contact with skin and eyes. Do not inhale. Use suitable respiratory equipment. Wash hands and skin with soap after contact. Keep away from oxidizing agents and acids.

**Protective measures:** Observe directions on label and instructions for use.

Advice on general occupational hygiene: practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet, or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used. Do not eat, drink or smoke when handling this product.

### **Conditions for safe storage, including incompatibilities:**

Do not store near sources of sparks, flame or heat. Keep under lock and out of reach of unauthorised persons, children and animals. Keep containers tightly closed in a dry, cool and well-ventilated place. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

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## Incompatible substances:

Store away from incompatible materials, heat, sun and source of ignition. Keep away from oxidizing agents and acids.

## SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Control parameters:

**Occupational exposure limits (OEL):** None known.

**Biological exposure indices (BEI):** None known.

**Additional exposure limits under the conditions of use:** None known.

### Exposure control:

**Appropriate engineering controls:** Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Hygiene measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Where there is possibility that an employee's eyes may be exposed to this substance; the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

**Respiratory protection:** Respiratory protection is not required under anticipated circumstances of exposure. Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance.

**Hand protection:** It is a good industrial hygiene practice to prevent skin contact. Use rubber gloves.

**Eye/face protection:** Risk of contact: Wear approved safety goggles. Contact lenses is not protective eye devices.

**Skin and body protection:** Employee must wear appropriate proactive impervious clothing: rubber boots, hat and equipment to prevent repeated or prolonged skin contact when working with chemicals. Do not wear leather clothing. Apron and long sleeves are recommended.

**Environmental exposure controls:** Environmental manager must be informed of all major spillages.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties:

<b>Appearance (form):</b>	Liquid
<b>Colour:</b>	Brown
<b>Odour:</b>	Light dour
<b>pH:</b>	3-4
<b>Melting point/range (°C):</b>	No data available
<b>Boiling point/range (°C):</b>	No data available
<b>Flash point (°C):</b>	Not applicable.
<b>Flammability:</b>	Not flammable
<b>Explosive properties:</b>	Not applicable
<b>Oxidizing Properties:</b>	Not Applicable
<b>Vapour pressure (°C):</b>	Not applicable
<b>Density:</b>	No data available
<b>Solubility - water:</b>	Fully miscible
<b>Specific gravity:</b>	1.3

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<b>Viscosity, dynamic:</b>	300 - 520 mPa.s (20 °C); Velocity gradient 20 /s
<b>Oxidizing properties:</b>	No oxidizing properties
<b>Explosibility:</b>	Not explosive

## SECTION 10. STABILITY AND REACTIVITY

### Reactivity:

The product is stable under normal warehouse conditions.

### Chemical stability:

Stable under normal temperatures and pressures.

### Possibility of hazardous reactions:

No hazardous reactions when stored and handled according to prescribed instructions.

### Conditions to avoid:

Extremes of temperature and direct sunlight.

### Incompatible materials:

Store only in the original container.

### Hazardous decomposition products:

No decomposition products expected under normal conditions of use.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Information on toxicological effects:

Acute toxicity - calculated	
Acute Oral LD <sub>50</sub>	Not classified
Acute Dermal LD <sub>50</sub>	Not classified
Acute Inhalation LC <sub>50</sub> (4 h)	Not classified
Skin Irritation/ Corrosion (Rabbits)	Substances in the formulation that classifies: Iron Sulphate Heptahydrate Category 2 Copper Sulphate Category 2 Fulvic Acid Category 2
Eye Damage / Irritation (Rabbits)	Substances in the formulation that classifies: Zinc Sulphate category 1
Respiratory Or Skin Sensitization (Guinea Pigs)	Non-sensitizing
Carcinogenicity	Substances in the formulation that classifies: Cobalt Sulphate Category 1B
Reproductive Toxicity	Substances in the formulation that classifies: Cobalt Sulphate category 1B Boric Acid Category 1B
Specific Target Organ Toxicity STOT Repeated Exposure	Substances in the formulation that classifies: Manganese Sulphate Category 2

Data Source- ECHA-(EC) No 1272/2008 (CLP Regulation)

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## SECTION 12. ECOLOGICAL INFORMATION

**Anticipated behaviour of the product in the environment /possible environmental impact/ecotoxicity:**

<b>Acute toxicity</b>	
<b>Birds</b> LD <sub>50</sub>	No information available
<b>Fish</b> LC <sub>50</sub> (96 h)	No information available
<b>Daphnia</b> EC <sub>50</sub> (48 h)	No information available
<b>Algae</b> LC <sub>50</sub> (72 h)	No information available
<b>Bees</b> LD <sub>50</sub>	No information available
<b>Worms</b> LC <sub>50</sub> (14 day)	No information available

**Persistence and degradability:** No information available

**Bio accumulative potential:** No information available

**Mobility in soil:** No information available

**Other adverse effects:** No information available.

## SECTION 13. DISPOSAL CONSIDERATIONS

**Waste treatment methods:**

**General Information:**

Do not discharge into drains, water courses or onto the ground. Discharge, treatment or disposal may be subject to national, state, or local laws. Empty containers may contain product residues. Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal. The product may be taken to a registered waste disposal site or incineration plant.

**Disposal Methods:** Destroy the container by perforating and flattening and dispose of through an approved waste dump site, incineration plant or recycling company.

**Container:** Since emptied containers retain product residue, follow label warnings even after container is emptied. Triple-rinse containers before disposal. Add rinsings to spray tank.

**Product/ packaging disposal:** Treat as hazardous waste and dispose of in accordance with municipal, provincial and national regulations.

## SECTION 14. TRANSPORT INFORMATION

**UN Number:** Not applicable

**UN proper shipping name:** Not applicable.

**UN Classification [ transport hazard class(es)]:** Not applicable

**Packing group (if applicable):** Not applicable

**Marine pollutant (Y/N):** N

**Transport in bulk according to MARPOL 73/78, Annex II and the IBC Code:** Not applicable.

## SECTION 15. REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation for the mixture:**

**Relevant information regarding authorization:** Regulation for Hazardous Chemical Agents 2021 (RHCA).

**Relevant information regarding restrictions:**

**EU regulations:** Regulation EC 1272/2008 [EU-GHS/CLP].

**Other National regulations:** National Road Traffic Act, 1996 (ACT NO. 93 of 1996).

**Chemical Safety Assessment carried out?** No

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## SECTION 16. OTHER INFORMATION

### Indication of changes:

GHS aligned.

### Relevant classification and H statements (number and full text):

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H350 May cause cancer.
- H360 May damage fertility or the unborn child.
- H373 Causes damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.

### Training instructions:

Use as indicated on the label, special training may be required for application.

### Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

### Notice to readers:

To the best of our knowledge, the information contained herein is accurate and is based on the present state of our knowledge and does not therefore guarantee specific properties. However, neither the above-named supplier nor any of its subsidiaries assumes any liability whatsoever for any accuracy or completeness of the information contained herein.

Final determinations of suitability of any material are sole responsibility of the users, who must take responsibility for observing existing laws and regulations. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.