

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ZMC PRO NuTech
Other identifier: ZMC PRO NuTech
Recommended use: Fertiliser
Restrictions on use: Agriculture
Supplier Rolfes Agri (Pty) Ltd
 288 Mundt Street
 Waltloo
 Pretoria, South Africa
Telephone: +27(0)12 803 0145
E-mail Address: info@rolfesagri.co.za
Emergency Phone Numbers:
Office hour poisoning helpline
 Rolfes Agri (Pty) Ltd +27 (12) 803 0145
Spill Response and Transport Incidents
 Spill Tech, 086 100 0366, www.spilltech.co.za
 Oil and chemical pollution control 083 253 6618

2. HAZARDS IDENTIFICATION

South Africa - GHS classification and labelling of chemicals and the Regulations for Hazardous Chemical Agents - 2021.

Hazard class	Hazard category	H-statement
Health		
Acute Toxicity – Oral	Category 4	H302
Eye Damage	Category 1	H318
Reproductive Toxicity	Category 1B	H360FD
Specific Target Organ Toxicity (Repeated Exposure)	Category 2	H373
Environment		
Hazardous to the Aquatic Environment – Short-Term (Acute) Hazard	Category 1	H400
Hazardous to the Aquatic Environment – Long-Term (Chronic) Hazard	Category 1	H410

The most important adverse effects:
Physiochemical effects: None known.

Human health effects:
 Causes Harmful if swallowed (Acute Tox. 4)
 Causes serious eye damage (Eye Dam. 1)
 May damage fertility or the unborn child (Repr. 1B)
 May cause damage to organs through prolonged or repeated exposure (STOT RE 2)

Pictograms:



Signal word: Danger.

Hazard statements:
 H302: Harmful if swallowed.
 H318: Causes serious eye damage.
 H360FD: May damage fertility or the unborn child.
 H373: May cause damage to organs through prolonged or repeated exposure.
 H400: Very toxic to aquatic life.
 H410: Very toxic to aquatic life with long-lasting effects.

Precautionary statements:
 P101: If medical advice is needed, have product container or label at hand.
 P102: Keep out of reach of children.
 P103: Read carefully and follow all instructions.
 P203: Obtain, read and follow all safety instructions before use.
 P260: Do not breathe dust/fumes/gas/mist/vapours/spray.
 P264+P265: Wash hands and affected area thoroughly after handling. Do not touch eyes.
 P270: Do not eat, drink, or smoke when using this product.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 P301 + P317: IF SWALLOWED: Get medical help.
 P305 + P354 + P338: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P318: IF exposed or concerned, get medical advice.
 P319: Get medical help if you feel unwell.
 P330: Rinse mouth.

P391: Collect spillage.
 P405: Store locked up.
 P501: Empty all pesticides from the container by placing it upside down over the spray tank and holding it there for at least 30 seconds. Puncture the rinsed container to render it useless and send to a recycler.

Special labelling of certain mixtures:

None known.

Other hazards:

None known.

Toxicity:

Classification according to GHS: Category 4.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients with Hazard Concerns (GHS): According to UN GHS criteria

Hazardous Component	CAS Number	Conc. (m/v) %	GHS Classification
Acetic acid	64-19-7	<10%	Flam. Liq. 3 (H226) Skin Corr. 1A (H314)
ZnSO ₄ .7H ₂ O (22,74% Zn) (11.15%S)	7446-19-7	<50%	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
CuSO ₄ .5H ₂ O (25.45%Cu) (11.15%S)	7758-98-7	<10%	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) M=10 Aquatic Chronic 1 (H410) M (Chronic)=1
MnSO ₄ .1H ₂ O(3 2.5%Mn) (18.97%S)	7785-87-7	<10%	STOT RE 2 (H373)
Boric acid (17.48%B)	10043-35-3	<10%	Repr. 1B (H360FD)

4. FIRST AID MEASURES

General Advice: The symptoms resulting from direct exposure to the product could appear a while after exposure. If there is persistent discomfort, seek medical attention. Provide this SDS to medical personnel for treatment. Immediately remove contaminated clothing and

remove the affected person from the contamination area. Keep the person warm, calm, and covered up. First Aid personnel should pay attention to their own safety.

Eye contact: Flush eyes immediately with flowing cold water for at least 15 – 20 minutes, until no evidence of chemical remains. If irritation persists, get medical help.

Skin contact: Remove all contaminated clothing and shoes. Gently wipe off residual chemical and wash skin thoroughly with water and non-abrasive soap.

Inhalation: Remove the affected victim from exposure to an area with fresh air. If breathing has stopped, administer artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If irritation persists, get medical help.

Ingestion: If exposed or concerned, seek medical attention for treatment advice. Do not induce vomiting unless instructed to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. If the person is alert, rinse mouth thoroughly with large amount water.

Most important symptoms/effects, acute and delayed:

None known.

Notes to physician: None known.

Specific treatments: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use carbon dioxide, dry chemical, alcohol resistant foam, water mist or fog. Do not use water jets.

Specific hazards arising from the chemical including thermal decomposition products: During fire, irritating and toxic gases will be released due to thermal decomposition or combustion.

Special protective equipment and precautions for fire-fighters: Firefighters must wear emergency equipment including positive pressure self-contained breathing apparatus with a full-face mask. Remove unaffected containers from fire area if possible.

Additional provisions: Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

Isolate leaks provided that there is no additional risk for the people performing the task. Personal protection equipment must be used against potential contact with the spilt product (see section 8).

Evacuate the area and keep out those who do not have protection.

Environmental Precautions:

Do not discharge into drains, water courses or onto the ground. Remove any intact containers. Advise local authority that none of the affected water should be used until natural dilution returns the levels to its normal environmental background level.

Methods for cleaning up:

For small spills, soak up with damp earth or sand, or other non-combustible absorbent material. Place into a labelled waste container subsequent reclamation or disposal. Keep the wash water out of drains, sewers, and waterways.

For large spills, contain the spillage with absorbent material (non-combustible for flammable products). Sweep up with absorbent material, contain and collect spilt product in suitable containers for proper disposal. Keep the wash water out of drains, sewers, and waterways.

Reference to other sections:

See Section 1 for emergency contact information.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information.

7. HANDLING AND STORAGE REQUIREMENTS**Precautions for safe handling**

Always provide good ventilation in the work area. Prevent contact with eyes, skin, and clothing. Do not breathe in mist or vapours. Wear protective clothing and equipment during handling as described in Section 8 of the SDS.

Do not eat or drink during use. Wash the hands and affected area thoroughly with soap after handling. Keep containers closed when not in use. Do not permit smoking in use or storage areas. Locate emergency showers and eye-rinsing facility near the work/handling area. Maintain good normal industrial hygiene and housekeeping practices in areas where the product is used/handled.

Conditions for safe storage, including any Incompatibilities.

Always store locked up and keep containers tightly closed when not in use. Store in a cool, dry, and well-ventilated place, out of direct sunlight. Check storage containers regularly for leaks and protect containers from physical damage. Store in the original container, avoid cross contamination with other agricultural products. Keep out of reach of children, uninformed persons, and animals. Do not contaminate water, food, or feed by storage or disposal. It is recommended to have appropriate spill control kits equipped with absorbent material in close proximity to storage areas (see Section 6).

Specific end use(s)

Use as directed. Use original containers.

8. EXPOSURE CONTROL / PERSONAL PROTECTION**National Occupational Exposure Limits – Restricted limits for hazardous chemical agents.**

Component	Type	Control Parameter	Update	Reference
Not Applicable	OEL-eight hour TWA	N/A	2021	South African RELs*
	OEL-STEL/C	N/A	2021	South African RELs*

Appropriate engineering controls: No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory protection: Respiratory protection selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use a properly fitted and well-maintained particulate filter respirator, complying with an approved standard. Respirator selection and use should be based on contaminant type, form and concentration. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Skin and Hand Protection: Select skin and hand protection based on the task being performed and the risks involved with the task. The gloves should be replaced immediately in case of damage or signs of wear. The personal protective clothing must be properly fitted and well maintained.

Eye/Face Protection: Select safety eye/face protection based on the task being performed and the risks involved with the task. Wear tightly fitted and well-maintained safety eyewear compliant with an approved standard.

Hygiene Measures: Wash the hands and/or face before breaks, eating, smoking, or using the lavatory and at the end of the shift/working period. Eye wash fountains and safety showers should be available and easily accessible. Wash contaminated clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/physical state: Liquid.

Odour: Not available.

Colour: Dark blue.

Boiling Point: Not applicable.

Vapour Pressure (mm Hg): Not applicable.

Evaporation Rate: Not applicable.

Relative Vapour Density: Not applicable.

Solubility in water: Soluble in water.

Decomposition temperature: Not applicable.
Melting point/freezing point: Not applicable.
pH: Not available.
Density : 1.36 g/ml at 22.6°C
Flammability: Not flammable.
Flash Point: Not applicable.
Flammable limits-LEL: Not applicable.
Auto-ignition temperature: Not applicable.
Viscosity: Not applicable.

10. STABILITY AND REACTIVITY

Reactivity: None known.
Chemical Stability: Chemical Stability: This product is stable for 2 years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50°C, preferably below 30°C, and not for prolonged periods in direct sunlight.
Possibility of Hazardous Reactions: None known.
Conditions to Avoid: Avoid excessive heat.
Incompatible Materials: None known.

Hazardous Decomposition Products: None known.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY: Calculated.
Acute Oral ToxicityLD₅₀: >1400 mg/kg
Acute Dermal Toxicity: Not classified.
Acute Inhalation Toxicity: Not classified.
Skin Corrosion/Irritation: Not classified.
Eye Damage/Irritation: Causes serious eye damage.
Skin Sensitization: Not classified.
Respiratory Sensitization: Not classified.
Germ cell mutagenicity: Not classified.
Carcinogenicity: Not classified.
Reproductive toxicity: May damage fertility or the unborn child.
Specific target organ toxicity – single exposure: Not classified.
Specific target organ toxicity – repeated exposure: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard: Not classified.
Symptoms related to the physical, chemical, and toxicological characteristics.
 No information available.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA: No information available.

ENVIRONMENTAL EFFECTS:

Plants: No information available.
Persistence and degradability: Not determined.
Bio-accumulative Potential: Not determined.
Mobility in soil: Not determined.









Other adverse effects: Not determined.

13. DISPOSAL CONSIDERATIONS

Waste handling and disposal: Dispose product related waste in accordance with all local regulations and prevent the contamination of water, food, or feed by storage or disposal of the waste. The product container/bottles may be taken to a registered waste disposal site or incineration plant.

General container handling: Empty all pesticides from the container by placing it upside down over the spray tank and holding it there for at least 30 seconds. Puncture the rinsed container to render it useless and send to a recycler.

14. TRANSPORT INFORMATION

	Land Transport (ADR/RID)	Inland Waterways (AND/ADNR)	Sea Transport (IMDG)	Air Transport (ICAO-TI / IATA-DGR)
UN Number	3082	3082	3082	3082
UN Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S
Transport Hazard Class	9	9	9	9
Transport Hazard Class Pictogram				
Packing Group	III	III	III	III
Environmental Hazard				

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation for the mixture.

South Africa

Regulations for Hazardous Chemical Agents – 2021 – SA Occupational Health and Safety Act. - Handling, labelling

and Safety Data Sheets for hazardous and GHS classified substances and mixtures. Occupational Exposure Limits. Hazardous Substances Act, 1973 (Act No.15 of 1973) - Requirements on the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of hazardous substances. Occupational Health and Safety Act No. 85 of 1993.- Occupational Health and Safety Standards for employers and users working with and around hazardous chemical substances. National Road Traffic Act, 1996 (ACT NO. 93 of 1996). - The identification and classification of dangerous goods for transport by road and rail modes.

Botswana

Pesticides and Toxic Substances Regulations. 1994 (2006) - Control and management of pesticides and other toxic substances. Environmental and Pollution Control Act. 1990 - Hazardous waste disposal, hazardous substances, pesticides, and effluent wastewater/discharge.

Namibia

Labour Act 11 of 2007 - Hazardous substances classification, labelling, Chemical Safety Data Sheets and Occupational Exposure Limits. Notification of the use of carcinogens and other controlled substances. Regulations relating to the Health and Safety of Employees at Work Government Notice 156 of 1997. Labour Act 11 of 2007 schedule, item 2(2). - Occupational Health and Safety Standards for employers and users working with and around hazardous chemical substances.

16. OTHER INFORMATION

Packaging: Packed in 1, 5, 10, 20, 25, 210 L Plastic bottles/Drums and labelled according to South African regulations and guidelines.

Relevant classification and H-Statements:

Acute Toxicity – Oral: Category 4
H302: Harmful if swallowed.

Eye Damage: Category 1
H318: Causes serious eye damage.

Reproduction Toxicity: Category 1B
H360FD: May damage fertility or the unborn child.

Specific Target Organ Toxicity Repeated Exposure: Category 2
H373: May cause damage to organs through prolonged or repeated exposure.

Hazardous to the Aquatic Environment – Short-Term (Acute) Hazard: Category 1
H400: Very toxic to aquatic life.

Hazardous to the Aquatic Environment – Long-Term (Chronic) Hazard: Category 1
H410: Very toxic to aquatic life with long-lasting effects.

Key to Abbreviations

AND	European Provisions concerning the International Carriage of Dangerous Goods by inland Waterways
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
COD	Chemical Oxygen Demand
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG	International Maritime Dangerous Goods
Log_{Pow}	Logarithm of the octanol/water partition coefficient
LD₅₀	Lethal Dose 50
LC₅₀	Lethal Concentration 50
RID	The Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
UN	United Nations

Notice to Reader

The information contained in this Safety Data Sheet relate only to the specific product and do not relate to the use of the product in combination with any other product or process. Information in the SDS is supplied to the best of **ROLFES AGRI (PTY) LTD's** knowledge and are believed to be current and correct as of the date on this SDS. All reasonable efforts were exercised to compile this SDS in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

The SDS only provides information applicable to the health, safety and environmental hazards of this product at the date of issue in order to facilitate the safe use, handling, storage and transport of this product and does not replace any product information or product specifications.

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in place and such information must be communicated to all persons that might be involved with and exposed to this product.

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