

## SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** CARBOLOGY ZMC

**Other identifier:** CARBOLOGY ZMC

**Recommended use:** Fertilizer

**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](mailto: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](http://www.spilltech.co.za)

Oil and chemical pollution control 083 253 6618

### 2. HAZARDS IDENTIFICATION

GHS classification and labelling of chemicals and the Regulations for Hazardous Chemical Agents - 2021.		
Hazard class	Hazard category	H-statement
<b>Health</b>		
Acute Toxicity - Oral	Category 4	H302
Serious Eye Damage	Category 1	H318
Specific target organ toxicity – repeated exposure	Category 2	H373
<b>Environment</b>		
Hazardous to the aquatic environment, short-term (acute)	Category 1	H400
Hazardous to the aquatic environment, long-term (chronic)	Category 1	H410

**The most important adverse effects:**

**Physiochemical effects:** None known

**Human health effects:**

Harmful if swallowed. (Acute Tox. 4)

Causes serious eye damage. (Eye Dam. 1)

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.

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.

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 eye protection/face 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.

P319: Get medical help if you feel unwell.

P330: Rinse mouth.

P391: Collect spillage.

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
ZnSO <sub>4</sub> ·7H <sub>2</sub> O	7446-19-7	10-30%	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
CuSO <sub>4</sub> ·5H <sub>2</sub> O	7758-99-8	<10%	Acute Tox. 4 (H302) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
MnSO <sub>4</sub> ·1H <sub>2</sub> O	10034-96-5	<10%	STOT RE 2 (H373) Aquatic Chronic 2 (H411)

#### 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 large amount of flowing cold water for 15-20 minutes, until no evidence of chemical remains. If irritation persists, get medical help.

**Skin contact:** Remove all contaminated clothing and shoes immediately. Gently wipe off residual chemical and wash skin thoroughly with water and non-abrasive soap. If irritation or rash persists, get medical help.

**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, rinse mouth thoroughly with large amount of water and get medical help.

**Most important symptoms/effects, acute and delayed:**  
No information available.

**Notes to physician:** None

**Specific treatments:** Treat symptomatically.

#### 5. FIRE FIGHTING MEASURES

#### **Suitable (and unsuitable) extinguishing media:**

Use carbon dioxide, dry chemical for small fires and alcohol resistant foam or water fog for large fires. Do not use water jets.

**Specific hazards arising from the chemical including thermal decomposition products:** Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Special protective equipment and precautions for firefighters:** 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. In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode.

#### 6. ACCIDENTAL RELEASE MEASURES

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

Ventilate the area of the spill or leak, especially when in confined areas. Do not touch or walk through spilled material as slippery when spilt. Contain spills if it can be done without risk and clean-up immediately.

Wear appropriate protective clothing recommended in Section 8 of the SDS.

#### **Environmental Precautions:**

Prevent spillage or further leakage if safe to do so.

Do not allow the spilt product to enter water courses and drains and avoid contact with soil. Do not allow the spilt product to spread to other areas - keep the spilt material contained and isolated. Report spills and releases as required to appropriate authorities if the spilt product has caused environmental pollution (sewers, water ways, soil or air).

#### **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. 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 face 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 container.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

### 8.1 Control parameters

There are no occupational exposure limits for the substances contained in the product.

### 8.2 Exposure controls

**Appropriate engineering controls:** 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:** Soluble Concentrate (Liquid)

**Odour:** Pungent odour.

**Colour:** Clear dark blue.

**Boiling Point:** >100°C.

**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 available.

**pH:** 2.35 – 3.59

**Density/relative density(g/cm<sup>3</sup>):** 1.36

**Partition coefficient n-octanol/water:** Not applicable.

**Flammability:** Not flammable.

**Flash Point:** Not applicable.

**Flammable limits-LEL:** Not applicable.

**Auto-ignition temperature:** Not applicable.

**Viscosity:** Not available.

## 10. STABILITY AND REACTIVITY

**Reactivity:** No data available. The product is stable under normal conditions of storage, handling and use.

**Chemical Stability:** This product is stable for 3 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:** Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

**Conditions to Avoid:** Applicable for handling and storage at room temperature: Avoid excessive heat.

**Incompatible Materials:** Avoid strong oxidising agents.

**Hazardous Decomposition Products:** On heating/burning release of toxic and corrosive gases/vapours.

## 11. TOXICOLOGICAL INFORMATION

**ACUTE TOXICITY: Calculated.**  
**Acute Toxicity Oral LD<sub>50</sub>:** >1600 mg/kg.  
**Acute Toxicity Dermal LD<sub>50</sub>:** >46100 mg/kg.  
**Acute Toxicity Inhalation:** 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:** Not classified.  
**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 data available.

### ENVIRONMENTAL EFFECTS:

**Plants:** No available.  
**Persistence and degradability:** In accordance with column 2 of REACH Annex VII, the ready biodegradability test does not need to be conducted as the substance is inorganic.  
**Bio-accumulative Potential:** No available.  
**Mobility in soil:** Soluble in water.  
**Other adverse effects:** Not information available.









## 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/bags 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	Environment ally hazardous substance, liquid, N.O.S.	Environment ally hazardous substance, liquid, N.O.S.	Environment ally hazardous substance, liquid, N.O.S.	Environment ally hazardous substance, liquid, N.O.S. )
Transport Hazard Class	9	9	9	9
Transport Hazard Class Pictogram				
Packing Group				
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 0.1, 0.2, 0.25, 0.5, 1, 5, 10, 20, 25, 200, 210 and 1000 L plastic containers and labelled according to South African regulations and guidelines.

### Relevant classification and H-Statements:

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

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

Specific target organ toxicity – repeated exposure – Category 2  
H373: May cause damage to organs through prolonged or repeated exposure.

Hazardous to the Aquatic Environment, Acute Hazard - Category 1  
H400: Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) - Category 1  
H410: Very toxic to aquatic life with long lasting effects.

### Key to Abbreviations

<b>AND</b>	European Provisions concerning the International Carriage of Dangerous Goods by inland Waterways
<b>ADR</b>	The European Agreement concerning the International Carriage of Dangerous Goods by Road
<b>ATE</b>	Acute Toxicity Estimate
<b>COD</b>	Chemical Oxygen Demand
<b>GHS</b>	Globally Harmonised System of Classification and Labelling of Chemicals
<b>IATA</b>	International Air Transport Association
<b>ICAO</b>	International Civil Aviation Organisation
<b>IMDG</b>	International Maritime Dangerous Goods
<b>Log<sub>Pow</sub></b>	Logarithm of the octanol/water partition coefficient
<b>LD<sub>50</sub></b>	Lethal Dose 50
<b>LC<sub>50</sub></b>	Lethal Concentration 50
<b>RID</b>	The Regulations concerning the International Carriage of Dangerous Goods by Rail
<b>SDS</b>	Safety Data Sheet
<b>UN</b>	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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### END OF SAFETY DATA SHEET