

# CARBology<sup>®</sup> ZMC



Reg. No. B4343 Act No. 36 of 1947

**FERTILIZER GROUP 2**

**READ LABEL BEFORE USE  
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

**CARBOLGY<sup>®</sup> ZMC** is a liquid fertilizer for use as a foliar feed to maintain or correct copper, zinc and manganese levels in plants.



## DANGER

Copper	(Cu)	15 g/l	11 g/kg
Zinc*	(Zn)	70 g/l	51 g/kg
Manganese*	(Mn)	39 g/l	28 g/kg

Amine gluconate chelated

**SG (20 °C) = 1,38**

UN Number.: 3082

### Emergency contact details

Office Hour Poisoning Helpline  
Rolfes Agri (Pty) Ltd.  
Tel: +27 (12) 803 0145

**Registration holder:** Rolfes Agri (Pty) Ltd.  
(Reg. No. 1998/013411/07) • 288 Mundt Street, Waltloo, 0184  
Gauteng, RSA. • Tel: (012) 803-0145  
[www.rolfesagri.co.za](http://www.rolfesagri.co.za)

**Distributed by:** INTELIGRO (Pty) Ltd.  
3 Marchand Street, Wellington, 7655  
Tel: +27 (21) 873 6177

### HAZARD STATEMENTS:

Harmful if swallowed.  
Causes serious eye damage.  
May cause damage to organs through prolonged or repeated exposure.  
Very toxic to aquatic life.  
Very toxic to aquatic life with long lasting effects.

### PRECAUTIONARY STATEMENTS:

Wash hands and affected area thoroughly after handling.  
Do not touch eyes.  
Avoid release to the environment.

**Rolfes**   
**Agri**

### Spill Response and Transport incidents

Spill Tech, Oil and chemical pollution control  
Tel: +27 (86) 100 0366 / +27 (83) 253 6618  
[www.spilltech.co.za](http://www.spilltech.co.za)

**Shake well before use** • Store at room temperature  
Keep out of direct sunlight • Keep container closed when not in use



LIFT HERE

**PRECAUTIONS:**

- If medical advice is needed, have product container or label at hand.
- Keep out of reach of children.
- Read carefully and follow all instructions.
- Do not breathe dust/fumes/gas/mist/vapours/spray.
- Wash hands and affected area thoroughly after handling. Do not touch eyes.
- Do not eat, drink or smoke when using this product.
- Avoid release to the environment.
- Wear eye protection/face protection.
- IF SWALLOWED: Get medical help.
- IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Get medical help if you feel unwell.
- Rinse mouth.
- Collect spillage.
- Empty all contents 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.

**RELEVANT HAZARDOUS SUBSTANCES:**

ZnSO<sub>4</sub>·7H<sub>2</sub>O 10-30%, CuSO<sub>4</sub>·5H<sub>2</sub>O <10% and MnSO<sub>4</sub>·H<sub>2</sub>O <10%.

**FIRST AID TREATMENT:**

- **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.

- **Eye contact:** Flush eyes immediately with large amount of 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. If irritation 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.

**DIRECTIONS FOR USE: USE ONLY AS DIRECTED**

Do not apply **CARBOLOGY ZMC**:

- In combination with copper containing fungicides, phosphates or phosphonates.
- Within 30 days after application of any copper fungicides.
- In combination with highly alkaline material such as lime sulphur, Bordeaux mixture or certain boron products.

**CARBOLOGY ZMC** should preferably be applied in the early morning or late afternoon.

Do not apply to plants that are undergoing a period of moisture or heat stress.

**CARBOLOGY ZMC** could lower the pH of the spray water. The use of a buffer is recommended when using in combination with other chemicals.

**RECOMMENDATIONS:**

Please ensure not to exceed the maximum rate per hectare. Do not exceed a concentration of 2% (2 l/100 l water) if mixed with other chemicals in a spray tank.

CROP	MAX RATE / HA PER APPLICATION	RATE PER 100 l WATER	REMARKS
<b>Beans</b> (Soy, Ground & Green)	5 l	75 – 300 ml	Start application before flowering. Apply 2 – 3 applications with 10 – 14 day intervals. Apply in 300 l water per ha. Apply at flowering. Repeat twice at 7 – 10 day intervals if necessary.
<b>Cereals and Canola</b> (Wheat, Oats, Barley, etc.)	5 l	75 – 300 ml	Start application at 3 – 4 leaf stage. Repeat every 10 – 14 days until beginning of grain fill period. Apply in 200 – 500 l water per ha.
<b>Deciduous Fruit</b> (Pome and Stone Fruit)	10 l	75 – 300 ml	Apply as a full cover spray in 2000 l water per hectare. Start application before flowering and repeat from petal fall. Repeat after harvest.
<b>Grapes</b> (Table and Wine)	10 l	75 – 300 ml	Start application before flowering and repeat with 2 – 3 applications after flowering. Apply in 500 – 1000 l water per hectare.
<b>Ornamentals, Lawns</b>	1 – 3 l		Apply as a full cover spray and repeat every 14 days as required.
<b>Olives</b>	3 – 5 l	75 – 300 ml	Apply early in the growing season and repeat 3 – 4 weeks later on new growth. Apply in 500 l water per hectare.
<b>Pomegranates, Figs</b>	3 – 5 l	75 – 300 ml	Apply early in the growing season and repeat 3 – 4 weeks later on new growth. Apply in 500 l water per hectare.
<b>Row Crops</b> Maize, Soya, Hops etc	5 l	75 – 300 ml	Start application at 3 – 4 leaf stage. Repeat every 10 – 14 days. Apply in 200 – 500 l water per hectare.
<b>Subtropical Fruit</b> (Avocado, Citrus, Mango, Litchi etc.)	10 l	75 – 300 ml	Apply as a full cover spray in 1000 – 2000 l water per hectare. Start application before flowering and repeat from petal fall. Repeat after harvest.

CROP	MAX RATE / HA PER APPLICATION	RATE PER 100 ℓ WATER	REMARKS
Tea	2 – 4 ℓ		3 – 4 applications depending on the severity of the deficiency on new spring growth.
<b>Tree Nuts</b> (Macadamias, Pecans and other Nuts)	10 ℓ	75 – 300 mℓ	Apply as a full cover spray in 2000 ℓ water per hectare. Start application before flowering and repeat from petal fall. Repeat after harvest.
<b>Vegetables</b> Brassicas, Bulb vegetables, Capsicums, Cucurbits, Root- and Tuber vegetables, Tomato, etc	5 ℓ	75 – 300 mℓ	Start application before flowering or at the first signs of a deficiency. Apply 2 – 3 applications with 10 – 14 day intervals. Apply in 500 ℓ water per hectare.
Cruciferae	5 ℓ	75 – 300 mℓ	Start application 3 – 4 weeks after transplant. Repeat every 10 – 14 days. Apply in 300 – 500 ℓ water per hectare.
Cucurbits (Pumpkins, etc.)	5 ℓ	75 – 300 mℓ	Start application before flowering and repeat every 10 – 14 days. Apply in 500 ℓ water per hectare.

For optimum results **CARBOLOGY ZMC** should be used in a program and in combination with other balanced fertilizers and foliar feeds. Use lower rates as a maintenance spray and higher rates to correct deficiencies. Consult with your chemical distributor for crop specific programs or if any other information is required regarding the use of **CARBOLOGY ZMC**.