

SAFETY DATA SHEET

ACCORDING TO THE SOUTH AFRICAN REGULATIONS FOR HAZARDOUS CHEMICAL AGENTS - 2021

CARBOLOGY® MULTI-TRACE

Revised on / Version: 08/11/2022 / 0004

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Replaces Revision of / Version: 30/06/2019 / 0003

SECTION 1: Product and Company Identification

Identification of the product/preparation

Product Name:	CARBOLOGY® MULTI-TRACE
Trade Name/Synonyms:	CARBOLOGY® MULTI-TRACE
Registration Number:	B3720
Product Description and Type:	CARBOLOGY® MULTI-TRACE is a liquid fertiliser for use as a foliar feed to maintain or correct zinc, iron, copper and manganese levels in plants. Also contains boron and molybdenum.

Active Ingredient

Formula:	Multi-Constituent Substance
CAS Number:	Not applicable

Supplier

Company Name: Rolfes Agri (Pty) Ltd
 Address: 288 Mundt Street
 Waltloo
 Pretoria
 South Africa
 Phone Number: +27(0)12 803 0145
 E-mail Address: info@rolfesagri.co.za

Emergency Phone Numbers

Nature of Emergency	Emergency Operator	Telephone Number
Office Hour Poisoning Helpline	Rolfes Agri (Pty) Ltd	+27 (12) 803 0145
Spill Response and Transport Incidents	Spill Tech, Oil, and chemical pollution control	+ 27 (0) 86 100 0366 + 27 (0) 83 253 6618 www.spilltech.co.za

Relevant identified uses of the product and uses advised against

For use in Agriculture and use as per the product label.

SECTION 2: Hazards Identification**Classification of the substance or mixture**

This product is classified as hazardous according to the criteria in South Africa - GHS classification and labelling of chemicals and the Regulations for Hazardous Chemical Agents - 2021.

Classification:

Hazard class	Category	Hazard Statement Number
Skin Corrosion/Irritant	3	H316
Serious Eye Damage/Eye Irritation	1	H318
Reproductive Toxicity	1B	H360
Specific Target Organ Toxicity, Repeated Exposure	2	H373
Hazardous to the Aquatic Environment, Acute Hazard	1	H400

Label Elements

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

Pictograms:**Signal Word:**

Danger

Hazard Statements:

Statement Number	Hazard Statement
H316	Causes mild skin irritation
H318	Causes serious eye damage
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life

Precautionary Statements:**General -**

Statement Number	Precautionary Statement
P101	If medical advice is needed, have container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.

Prevention -

Statement Number	Precautionary Statement
P203	Obtain, read and follow all safety instructions before use.
P260	Do not breathe fume/gas/mist/vapours/spray.

CARBOLOGY® MULTI-TRACE

P264 + P265	Wash hands and affected areas thoroughly after handling. Do not touch eyes.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response –

Statement Number	Precautionary Statement
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.
P332 + P317	If skin irritation occurs: Get medical help.
P391	Collect spillage.

Storage -

Statement Number	Precautionary Statement
P405	Store locked up.

Disposal -

Statement Number	Precautionary Statement
P501	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

Other Hazards

None known

SECTION 3: Composition/Information on Ingredients

Mixture

Common Name:	CARBOLOGY® MULTI-TRACE
IUPAC/Chemical Name:	CARBOLOGY® MULTI-TRACE
Chemical Family:	
Formulation:	Multi-Constituent Substance

Ingredients with Hazard Concerns (GHS)

According to UN GHS criteria.

Hazardous Component	CAS Number	Weight - %	GHS Classification
Boric Acid	10043-35-3	<10	Reproductive toxicity, Category 1
Copper Sulphate	7758-99-8	<10	Eye Dam.1 Aquatic Acute 1 M=10
Zinc Sulphate	7446-19-7	10-30	Eye Dam.1
Manganese Sulphate	10034-96-5	<10	STOT RE 2
Ferrous Sulphate	7782-63-0	<10	Skin Irrit. 2, Eye Irrit. 2

NOTE: There are no other ingredients present according to the current knowledge of the supplier (considering their concentrations present in the product) that are classified as hazardous to health or the environment and that cause/contribute to the correct GHS classification of this product. These ingredients are therefore, in terms of the South African Hazardous Chemical Agent Regulations 2021; Regulation 14(b), not listed.

SECTION 4: First-Aid Measures**Description of 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	IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
Skin Contact	If skin irritation occurs: Get medical help. Remove all contaminated clothing and shoes. Wash contaminated clothing before re-use. Rinse the skin immediately with plenty of water.
Inhalation	Remove the affected victim from exposure to an area with fresh air as a precaution. If not breathing, administer artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain immediate medical attention.
Ingestion	If exposed or concerned, get medical advice.

Most important symptoms/effects, acute and delayed

Symptoms of exposure to the product include eye irritation and skin irritation.

Indication of any immediate medical attention and special treatment needed

Notes to physician: None

Specific treatments: Treat symptomatically and supportively.

SECTION 5: Firefighting Measures

Suitable (and unsuitable) extinguishing media	Use carbon dioxide, dry chemical, alcohol resistant foam, or water spray. Do not use water jets.
Specific hazards arising from the chemical including thermal decomposition products	Fires involving the product may produce irritating or poisonous vapours, mists, or other products of 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 site's Internal Emergency Plan and the Workplace Specific Procedures for actions to be taken after an accident or other emergencies.

SECTION 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.

SECTION 7: Handling and Storage**Precautions for safe handling**

Always provide good ventilation in the work area. Prevent contact with eyes, skin and clothing. Do not breathe in dust/vapours/spray mists. 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.

SECTION 8: Exposure Controls and Personal Protection

National Occupational Exposure Limits – Restricted limits for hazardous chemical agents:

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

*REL: Recommended Exposure Limit.
 OEL-eight hour TWA: Occupational Exposure Limit- Time Weighted Average. Calculated over an eight-hour working day, for a five-day working week.
 OEL-STEL/C: Occupational Exposure Limit – short Term Exposure Limit /Ceiling Limit. Peak airborne concentration determined over the shortest analytically practicable period of time, which does not exceed 15 minutes.

National Biological Exposure Indices (BEIs) for hazardous chemical agents:

Component	Sample Matrix	Sample Time	Value
N/A	N/A	N/A	N/A

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.

Environmental exposure controls

In accordance with the local legislation for the protection of the environment it is recommended to avoid environmental spillage or releases of both the product and its container.

SECTION 9: Physical and Chemical Properties

Data applicable to mixture

Appearance	Appearance/physical state	Liquid
	Odour characteristics	Pungent odour
	Colour	Dark Blue
Volatility	Boiling point (°C)	>100 °C
	Vapour pressure (Pa)	Not applicable
	Evaporation Rate at 20 °C	Not applicable
Product Description	Relative density (kg/m ³ , relative density of water =1)	1.26
	Solubility in water (g/100mL)	Soluble in water
	Decomposition temperature (°C)	Not applicable
	Melting point/freezing point (°C)	Not applicable
	pH	2.8 – 3.2
	Density/relative density (g/cm ³)	1.26
	Particle characteristics	Not applicable
Flammability	Flammable (Y/N)	Not applicable
	Flash point (°C)	Not applicable
	Flammable limits-LEL	Not applicable
	Auto-ignition Temperature (°C)	Not applicable

*Not relevant due to the nature of the product, not providing information property of its hazards.

Other Hazard Information

None known

SECTION 10: Stability and Reactivity**Reactivity**

The product is stable under normal ambient conditions.

Chemical Stability

Stable under normal ambient conditions of use, storage and transport.

Possibility of Hazardous Reactions

None known under conditions of normal use.

Conditions to Avoid

Avoid extreme temperatures (>50°C). Keep away from heat and ignition sources.

Incompatible Materials

Incompatible with: Avoid strong oxidizing agents and acids.

Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological Information

Information on likely routes of exposure**Toxicokinetics, metabolism and distribution:**

Non-human toxicological data: No Information available.

Method: No Information available.

Dosage: No Information available.

Routes of administration: No Information available.

Results: No Information available.

Absorption: No Information available.

Distribution: No Information available.

Metabolism: No Information available.

Excretion: No Information available.

Information on toxicological effects

Acute oral toxicity: Does not meet the GHS Classification criteria.

Acute dermal toxicity: Does not meet the GHS Classification criteria.

Acute inhalation toxicity: Does not meet the GHS Classification criteria.

Skin corrosion/irritation: FeSO₄·7H₂O. Warning! This substance causes skin irritation.

Ingredient is classified as Category 3

Serious eye damage/irritation: ZnSO₄·7H₂O & CuSO₄·5H₂O

Danger! This substance causes serious eye damage. Ingredient is classified for Category 1

Respiratory or skin sensitization: Does not meet the GHS Classification criteria.

Germ cell mutagenicity: Does not meet the GHS Classification criteria.

Carcinogenicity: Does not meet the GHS Classification criteria.

Reproductive toxicity: Boric Acid

Danger! This substance may damage fertility and may damage the unborn child.

The ingredient is classified for Category 1B

STOT-single exposure: Does not meet the GHS Classification criteria.

STOT-repeated exposure: MnSO₄·1H₂O

Warning! This substance may cause damage to organs through prolonged or repeated exposure. This ingredient is classified for Category 2

Aspiration hazard: Does not meet the GHS Classification criteria..

Symptoms related to the physical, chemical, and toxicological characteristics

No information available.

SECTION 12: Ecological Information**Ecotoxicity**

Short-term (Acute) hazard Aquatic : ZnSO₄·7H₂O & CuSO₄·5H₂O

Danger! According to the classification provided by companies to ECHA in CLP notifications this substance is very toxic to aquatic life.

The ingredients are classified for Category 1

ZnSO₄·7H₂O

Crustaceans - Daphnia 48h mg/L EC₅₀ – 1,4 mg/l

Fish 96h mg/L LC₅₀ - 0,330 mg/L

Algae and Aquatic Plants 72h EC₅₀ (mg/L) - 64,8 mg/l

CuSO₄·5H₂O

Fish 96h mg/L LC₅₀ – 0.032 mg/l

Long-term (Chronic) hazard Aquatic: Does not meet the GHS Classification criteria.

Bio-degradability in the aquatic environment: Test does not need to be conducted as the substance is inorganic.

Toxicity to other species

Birds: No information available

Bees: No information available

Other Environmental and Adverse Effects:

Persistence and Degradability: No information available.

Bioaccumulative Potential:

Not bio-accumulated.

Mobility in Soil:

Soluble in water.

Other Adverse Effects:

High concentration in receiving water will injure aquatic life.

SECTION 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.

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. Do not use empty containers for any other purpose.

SECTION 14: Transport Information

	Land Transport (ADR/RID)	Inland Waterways (AND/ADNR)	See 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 (contains Zinc sulphate)	Environmentally hazardous substance, liquid, n.o.s (contains Zinc sulphate)	Environmentally hazardous substance, liquid, n.o.s (contains Zinc sulphate)	Environmentally hazardous substance, liquid, n.o.s (contains Zinc sulphate)
Transport Hazard Class	9	9	9	9
Transport Hazard Class Pictogram				
Transport Subsidiary Class	-	-	-	-
Packaging Group	III	III	III	III

Environmental Hazard				
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SECTION 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.

SECTION 16: Other Information

Indication of changes

Alignment to the GHS.

Relevant classification and H-Statements (Number and full text):

Skin Corrosion/Irritant – Category 3

H316: Causes mild skin irritation

Serious Eye Damage/ Eye Irritation- Category 1

H318: Causes serious eye damage

Reproductive Toxicity- Category 1B

H360: 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, Acute Hazard-Category 1

H400: Very toxic to aquatic life

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.

It is not possible for ROLFES AGRI (PTY) LTD to anticipate or control all conditions under which this product, this product may be used, handled, stored or transported. The obligation of the user, receiver, handler or transporter remains to review the content of the SDS prior to potentially exposing persons/employees to the product and to consider any risks that may associated with the hazards of the product during use, handlings, storage or transportation. Appropriate health, safety and environmental protection risk mitigating measures must be 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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This document is intended only as a guide to the appropriate precautionary handling and use of the product by a properly trained person. Individuals receiving the information must exercise their independent judgement in determining its

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