

SAFETY DATA SHEET

Issue No: 1.1	Revision date: 2 October 2023 First print date: 5 May 2021
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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name:	CopperKill SC
Other means of identification:	Copper Hydroxide 538 g/ℓ
Recommended Use:	Agricultural fungicide
Supplier:	ICA International Chemicals (Pty) Ltd
Address:	28 Planken Street Plankenbrug Industrial STELLENBOSCH · 7600 · SOUTH AFRICA
Telephone No:	+27-21 886 9812
Fax No:	+27-21 886 8209
Emergency Tel No:	Griffon Poison Information Centre: +27-82 446 8946 Human Poison Helpline: +27-861 555 777

2. HAZARD IDENTIFICATION

GHS Classification of product	Acute Oral Toxicity – Category 4 Acute Inhalation Toxicity – Category 4 Eye Damage – Category 1 Aquatic Acute Toxicity – Category 1 Aquatic Chronic Toxicity – Category 1
Label Elements Classification and Labelling of Chemicals (GHS) Rev 9, 2021; Regulation EC No. 1272/2008 [EU-GHS/CLP]	
Signal word	DANGER
Hazard Statements	H302 – Harmful if swallowed H318 – Cause serious eye damage H332 – Harmful if inhaled H410 – Very toxic to aquatic life with long lasting effects
General 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.
Prevention Precautionary Statements	P261: Avoid breathing fumes/mist/spray. P264 + P265: Wash hands, face and exposed skin 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 and face protection.
Response Precautionary Statements	P301 + P330 + P317: IF SWALLOWED: Rinse mouth and get medical help. P304 + P340 + P317: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help. P305 + P354 + P338 + P317: IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help. P362 + P364: Take off contaminated clothing and wash it before reuse. P391: Collect spillage.
Storage Precautionary Statements	P405: Store locked up.

3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT(S)	CAS NO:	CONCENTRATION % (w/v)	CLASSIFICATION EC1272/2008
Copper (II) hydroxide	20427-59-2	53.8	Acute Oral Toxicity Category 4, H302; Acute Inhalation Toxicity Category 2, H330; Eye Damage Category 1, H318; Aquatic Acute Category 1, H400; Aquatic Chronic Category 1, H410

There are no additional ingredients present which, within the current knowledge of the provider of this SDS, and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. See section 16 for legend of additional H-statements not mentioned in section 2.

4. FIRST AID MEASURES

Show this SAFETY DATA SHEET to a doctor.

INHALATION:

- Remove the victim from immediate source of exposure. Move victim to fresh air, if it can be done safely, and keep comfortable.
- If victim's breathing has stopped, perform artificial respiration.
- DO NOT perform mouth-to-mouth resuscitation if victim ingested or inhaled the substance; wash face and mouth before giving artificial respiration. Use a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if victim's breathing is difficult or irregular.
- Get medical help if you feel unwell.

SKIN:

- Remove and isolate contaminated clothing, shoes, and leather goods and take a shower.
- Rinse affected areas cautiously with non-abrasive soap or mild detergent and large amounts of running water. Wash contaminated clothing before reuse. Get medical help if irritation develops and persists.

EYES:

- Rinse eyes IMMEDIATELY with clean running water for at least 15 minutes, while holding eyelids apart. Remove contact lenses after 5 minutes if present and easy to do. Continue rinsing while holding eyelids apart.
- Do not rub eye/s. Seek immediate medical help if irritation continues.

INGESTION:

- If swallowed, rinse mouth thoroughly with water. DO NOT induce vomiting, unless instructed to do so by poison control centre or doctor.
- If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomits, keep on giving fluids.
- Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN:

- There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient.

POTENTIAL HEALTH EFFECTS, ACUTE AND DELAYED

- Causes eye burns and severe eye damage.
- Repeated ingestion of copper salts may result in anemia, liver and kidney damage. Chronic inhalation exposure may cause a metallic taste in the mouth, irritation of the upper respiratory tract such as nasal mucosa that may progress to perforation of the nasal septum. Chronic cough may also occur.

5. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:

Small fires: Water spray or fog is recommended. Dry chemical powder can also be used on small fires if water is not available.

Large fires: Water spray, fog, carbon dioxide (CO₂) and alcohol-resistant foam. Note: foam and dry chemicals will minimize the environmental impact in case of fire.

FIRE INVOLVING TANKS:

Cool containers with flooding quantities of water until well after fire is out. DO NOT get water inside containers. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.

UNSUITABLE EXTINGUISHING MEDIA:	DO NOT use high volume water jet, due to contamination risk and the spreading of burning material.
SPECIFIC EXTINGUISHING METHODS:	Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Collect contaminated extinguishing water separately; do not allow contaminated water to reach the sewage or effluent systems.
SPECIFIC HAZARDS ARISING FROM COMBUSTION PRODUCTS:	Combustion and/or pyrolysis of the product in case of fire could generate irritating, toxic and corrosive fumes (or gasses). Copper oxides may form at high temperatures resulting from burning.
PRECAUTIONS FOR FIRE FIGHTERS:	Fire fighters should wear full protective gear including self-contained breathing apparatus (SCBA). Fight fire from safe distance. Contact with the fumes and vapours should be avoided by staying upwind. Clean all clothing before reuse. Severely contaminated clothing cannot be adequately decontaminated and must be disposed as a hazardous waste. Shower with soap and water after contact with chemical product.
FURTHER INFORMATION:	<ul style="list-style-type: none"> • If possible, safely move undamaged intact containers away from the area around the fire. • Keep containers cool by spraying with water if exposed to fire. • Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. • In case of fire and/or explosion do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK:

PERSONAL PRECAUTIONS:	Avoid contact with skin and eyes. Do not touch or walk through spilled material. Do not inhale vapours/mist/spray.
PROTECTIVE EQUIPMENT:	Wear personal protective clothing and equipment (see section 8).
EMERGENCY PROCEDURES:	Keep people and animals away. Eliminate all ignition sources (no smoking, flares, sparks, or flames) from immediate area. All equipment used when handling the product must be grounded.
ENVIRONMENTAL PRECAUTIONS:	PREVENT spilled material from entering waterway and sewer systems, basements, and confined areas. If the product contaminates rivers and lakes or waterways immediately inform respective authorities.
METHODS AND MATERIALS FOR CONTAINMENT:	Contain and absorb liquid spills with inert material, remove by scoop or vacuum. Use approved industrial vacuum cleaner for removal and place in clearly marked waste containers.
METHODS AND MATERIALS FOR CLEANING UP:	Small Spills: Collect by using absorbent material. Shovel up and place into labelled waste containers for disposal. Seal the container and dispose of the collected spilt material as hazardous waste. Wash contaminated surfaces to remove any residues. Minimize use of water to prevent environmental contamination. Large Spills: Prevent spillage or further leakage if it is safe to do so. Do not wash away into sewers. Contain spillage with absorbent socks/cushions from the Spill Kit. Flush spill area with water to remove any residues and contain the wash water. Keep product and wash water out of drains, sewers, ditches and waterways. Dig up heavily contaminated soil. Dispose of the spill residues as hazardous waste.
SECONDARY DISASTER PREVENTION MEASURES:	NA

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:	<ul style="list-style-type: none"> • Always store pesticides in their original containers, which include the label listing ingredients, directions for use, and first aid steps in case of accidental poisoning. • Never transfer pesticides to soft drink bottles or other containers. Children or others may mistake them for something to eat or drink. • Wear suitable protective clothing which include chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves. • Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Wash hands, arms, and face after application. Wash gloves and contaminated protective clothing daily before reuse.
- Suitable Technical Measures	
- Suitable Precautions	
- Prevention of contact	

CONDITIONS FOR SAFE STORAGE:

- Suitable Technical Measures
- Separation measures from incompatible substances and mixtures

- Keep out of reach of unauthorized persons, children, and animals. Always store pesticides in their original containers, which include the label listing ingredients, in a cool, dry, and well-ventilated area out of direct sunlight.
- Segregate from foods and animal feeds.
- DO NOT reuse the container for any other purpose.

PACKAGING MATERIAL

HDPE Fluorinated Containers

FIRE PRECAUTIONS:

Not applicable

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION
ADI – Acceptable Daily Intake
Copper (II) hydroxide – 0.15 mg kg⁻¹ bw day⁻¹
ARfD – Acute Reference Dose

None allocated

AOEL – Accepted Operator Exposure Level

None allocated

NATIONAL EXPOSURE STANDARDS:

None allocated

BIOLOGICAL LIMIT VALUES:

None allocated

ENGINEERING CONTROLS:

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. If airborne mist/vapours are generated use local exhaust ventilation controls. Facilities should be equipped with an eyewash station and a safety shower. Where necessary, seek additional occupational hygiene advice.

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory Protection: Where exposure through inhalation may occur when handling and/or when preparing the spray mixture, wear a face mask. If the product is used in confined spaces a respirator suitable for protection from dusts and mists of pesticides is adequate.

Hand Protection: Wear chemical-resistant gloves made of any waterproof material such as nitrile rubber. Glove thickness: 0.5 mm

Eye Protection: The use of safety goggles (full-face shield) is recommended.

Skin and Body Protection: Wear suitable protective clothing which include chemical-resistant overalls, footwear, socks, dust mask, eye shields and gloves. Remove and wash contaminated protective clothing daily.

9. PHYSICAL AND CHEMICAL PROPERTIES
PHYSICAL STATE:

Liquid

COLOUR:

Blue

ODOUR:

Slight chemical odour

MELTING POINT / FREEZING POINT °C:

Decompose before melting

BOILING POINT:

Decompose before boiling

DECOMPOSITION TEMPERATURE (a.i):

229 °C

FLAMMABILITY:

Not available

FLASH POINT:

Not available

EXPLOSIVE LIMITS:

Not available

AUTO-IGNITION TEMPERATURE:

Not available

pH (1% IN WATER):

7.0 – 9.0

KINEMATIC VISCOSITY:

Not available

$$\text{Kinematic viscosity} = \frac{\text{Dynamic viscosity (mPa/s)}}{\text{Density (g/cm}^3\text{)}}$$

VISCOSITY:

Not available

DENSITY / RELATIVE DENSITY:

1.40 – 1.45 g/mℓ

SOLUBILITY - WATER (a.i):

Soluble = 0.506 mg/ℓ (pH 7) 20 °C

N-OCTANOL / WATER PARTITION COEFFICIENT (a.i):

Not available

VAPOUR PRESSURE (a.i):

 1.0 x 10⁻⁰⁶ mPa at 20 °C

RELATIVE VAPOUR DENSITY:

Not available

10. STABILITY AND REACTIVITY
REACTIVITY:

Product is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

CHEMICAL STABILITY:	Hazardous polymerization will not occur. Stable for a minimum of 2 years under recommended storage and handling conditions.
HAZARDOUS REACTION:	Slightly reactive with oxidizing agents.
CONDITIONS TO AVOID: (e.g. – heat, pressure, static discharge, shock, or vibration)	Avoid excessive heat.
INCOMPATIBLE MATERIALS:	Strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:	Does not decompose when used for intended uses. Could decompose when heated. Under burning conditions, the product may form toxic and irritating fumes including oxides of copper. See section 5.

11. TOXICOLOGICAL INFORMATION

	ANIMAL ACUTE TOXICITY DATA (ATE)	
ORAL:	LD ₅₀ (rat) = 1208 mg/kg bw	Category 4
DERMAL:	LD ₅₀ (rat) > 2000 mg/kg bw	Not Classified
INHALATION:	LC ₅₀ (4h) rat = 1.14 mg/ℓ	Category 4
SKIN IRRITATION / CORROSION:		Not Classified
SERIOUS EYE IRRITATION / DAMAGE:	OECD 405	Category 1
SKIN 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:		Not Classified
ASPIRATION HAZARD:		Not Classified

12. ECOLOGICAL INFORMATION

ECOTOXICITY:		
COPPER (II) HYDROXIDE	Birds: LD ₅₀ (oral)	<i>Colinus virginianus</i> (Bobwhite Quail) Acute LD ₅₀ = 223 mg/kg bw/day
	Fish: LC ₅₀	<i>Oncorhynchus mykiss</i> (Rainbow trout) Acute (96h) LC ₅₀ = 0.017 mg a.i./ℓ NOEC = 0.027 mg a.i./ℓ (21-day)
	Aquatic invertebrates – <i>Daphnia</i>	<i>Daphnia magna</i> (Water flea) Acute (48h) EC ₅₀ = 0.038 mg a.i./ℓ Chronic (21-day) NOEC = 0.03 mg a.i./ℓ
	Algae – EC ₅₀	<i>Pseudokirchneriella subspicatus</i> Acute (72h) EC ₅₀ = 0.009 mg a.i./ℓ
	Bees	<i>Apis mellifera</i> Acute contact 48-hour LD ₅₀ > 44.46 (µg.bee ⁻¹) Acute oral 48-hour LD ₅₀ = 49.0 (µg.bee ⁻¹)
	Earthworms: LC ₅₀	<i>Eisenia fetida</i> Acute (14-day) LC ₅₀ > 677 mg a.i./kg d.w. soil Chronic NOEC < 15 mg a.i./kg d.w. soil
AQUATIC TOXICITY:	Aquatic Acute Toxicity – Category 1 Aquatic Chronic Toxicity – Category 1	
PERSISTENCE, DEGRADABILITY AND MOBILITY:	Copper (II) hydroxide is very persistent in the soil and non-mobile. Because copper is an element, it cannot break down any further via hydrolysis, metabolism, or any other degradation processes. DT ₅₀ = 2 600 days (very persistent) K _{oc} = 12 000 (non-mobile)	
BIO-ACCUMULATIVE POTENTIAL:	Copper is strongly bioaccumulative. BCF = Low risk LogP < 3	
SOIL MICRO-ORGANISMS:	Carbon transformation	No significant adverse/long-term effect

13. DISPOSAL CONSIDERATIONS

On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities.

TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS: Containers must be completely emptied before being disposed of. Invert the empty container over the spray or mixing tank and drain for at least 30 seconds until the flow has slowed down to a drip. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler (www.croplife.co.za). Do not bury, burn, or donate the container to any other parties that may use it as a container for food or beverages.

14. TRANSPORT INFORMATION

UN NUMBER:	3082
UN PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, [53.8 % Copper (II) hydroxide]
TRANSPORT HAZARD CLASS(ES):	Class 9
PACKAGING GROUP:	III (Low danger)
GHS PICTOGRAM:	
ENVIRONMENTAL HAZARDS:	Marine Pollutant: Yes – Category 1
TRANSPORT IN BULK:	Not applicable, not to be transported in bulk.
SPECIAL PRECAUTIONS FOR USER:	Not applicable

15. REGULATORY INFORMATION

Conforms to South Africa Regulation for Hazardous Chemical Agents, 2021.
 South African Registration number L10999, Act 36 of 1947.
 SDS valid for five years from date of issue.

16. OTHER INFORMATION

Legend: Full text of H-Statements referred to under sections 3:

H330 – Fatal if inhaled

H400 – Very toxic to aquatic life

Key literature references and sources of data: Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 9, 2021. UN Model Regulations Rev. 22 (2021). EU REGULATION (EC) No. 1272/2008.

This Safety Data Sheet (SDS) summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how to prevent accidents in the normal workplace including in conjunction with other products.

The information was obtained from sources which we believe are reliable. However, the information is provided in good faith. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and for these reasons we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used for this product only.

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END of SDS