COPPER 5.4%

POWERAG™

SAFETY DATA SHEET
according to 29 CFR 1910.1200
Revision Date: 23.09.15
Version: 1.0/EN (USA)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Mixture

Mixture name: Copper 5.4%
Other means of identification: Not applicable
Hazard components for labeling: Copper compounds

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant Identified uses: Fertilizer
Uses advised against: Not for consumption

1.3. Details of the supplier of the safety data sheet

PowerAG
2213 Leabrook Road, Lancaster PA 17601
1-800-842-2578 powerag.com

1.4. Emergency telephone number

Emergency number: 1-800-424-9300 ChemTrec

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance

Classification according to 29 CFR 1910.1200	Classification procedure
Acute Tox. (oral) 4; H302	Based on ATE calculations
Serious Eye Dam. 1; H318	Based on concentration threshold

Additional information: Full text of H-phrases: see SECTION 16.

2.2. Label elements

Labeling according to 29 CFR 1910.1200

Hazard pictograms:

Signal word: Danger

Hazard statements: Harmful if swallowed. Causes serious eye damage.

Precautionary statements: Wash face, hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear eye protection. IF SWALLOWED: Immediately call a POISON CENTER or doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. Rinse mouth. Dispose of container in accordance with regulations.

Supplemental hazard information: None

Special rules for supplemental label elements for certain mixtures: Not applicable

Additional labeling: None

2.3. Other hazards

None known

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Description of mixture: Liquid blend of inorganic salts containing Copper.

Hazardous ingredients:

Substance name	Concentration	Classification according to 29 CFR 1900.1210
Copper Compounds	24.2-25.6%	Acute Tox. 4, oral Serious eye damage 1 Hazardous to the aquatic environment, Acute Category 1 Hazardous to the aquatic environment, Chronic Category 1

This mixture does not, within the current knowledge of the supplier, contain further substances above their cutoff concentration limit fulfilling the criteria of hazard classes according to the 29 CFR 1910.1200 regulation or present a health risk below the cutoff concentration limit. Substances that do not fall within classification criteria are not specified in this document to protect confidentiality.

Additional information: This mixture does not contain further substances fulfilling the criteria of hazard class "acute toxicity" according to the 29 CFR 1910.1200 regulation.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information:

Take precautions to ensure your own safety when helping another person. Always wear appropriate personal protective equipment (see Section 8). If medical advice is needed, have Safety Data Sheet or product label at hand and provide treatment already administered.

Following inhalation:

If exposed or concerned: Get medical advice.

Following skin contact:

Rinse with lukewarm, gently flowing water (and mild soap) for 5 minutes or until product is removed. If skin irritation occurs or you feel unwell: Get medical advice.

Following eye contact:

Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER or doctor.

Following ingestion:

Immediately call a POISON CENTER or doctor. Rinse mouth. If breathing has stopped, trained personnel should begin rescue breathing or, if the heart has stopped, immediately start cardiopulmonary resuscitation or automated external defibrillation.

4.2. Most important symptoms and effects, both acute and delayed.

No information on this product

4.3. Indication of any immediate medical attention and special treatment needed.

No information on this product

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Product is incombustible. Select firefighting measures according to the surrounding conditions.

5.2. Special hazards arising from the substance or mixture

In the case of inclusion in an ambient fire the following hazardous substances can be released: Sulfuric oxides and metal oxide fumes.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and special tightly sealed suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Protective equipment:

Wear respiratory protection, eye protection, hand protection and body protection. See section 8.2 of this SDS.

Emergency procedures:

Evacuate all individuals. Warn surrounding areas. Isolate the area. Put protective measures in place. Only individuals with suitable personal protective equipment should be allowed into the affected area. Remove the source if safe to do so and provide adequate ventilation in closed spaces. Afterwards ventilate area and wash spill area.

6.2. Environmental precautions

Hazardous to the aquatic environment. Use as indicated by label or as prescribed by agriculturist. Prevent penetration into water, drainage, sewers or ground. Inform the responsible authorities when large quantities get into water, drainage, sewer, or the ground.

6.3. Methods and material for containment and cleaning up

For containment:

Use suitable closed, labeled containers for disposal in accordance with national and local regulations.

For cleaning up:

Use suitable protective equipment while cleaning if necessary. See section 8.2 of this SDS. Wipe clean with cloth or paper towel. Tested industrial vacuum cleaner or suction device can be used as alternative. Use of blower for clean is not recommended.

6.4. Reference to other sections

See section 8.2 for information on personal protective. See section 13 for disposal methods.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Protective measures:

Heed advice on general occupational hygiene. Fill only into clearly marked containers. Label containers and pipelines clearly. Provide good ventilation in work areas. Used closed apparatus if possible. Washing facility at the workplace is required. Eye bath required. These locations must be sign posted. If release of the product can't be prevented, then it should be suctioned off at the point of exit.

Fire preventions:

Product is noncombustible. Select fire and explosion prevention measures according to the other used substances.

Environmental precautions:

Dispose in accordance with national and local regulations.

Advice on general occupational hygiene:

Take care to keep workplace clean and dry. Wear personal protective equipment. Do not leave container open. Wash skin with soap and water before breaks and at the end of work and apply fatty skin-care products after washing. Foods, beverages and other articles of consumption must not be consumed at the work areas. Suitable areas are to be designated for these purposes. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Transport in sealed containers at room temperature, Store in dry, ventilated place in tightly sealed container at room temperature.

Requirements for storage rooms and vessels:

Do not use any food containers to prevent a mistake. Containers must be labeled clearly and permanently. Store in the original container as much as possible. Keep container tightly closed in a cool, dry and well-ventilated place.

Packaging materials:

Glass, PE, PP, and PVC

Materials to avoid:

- Pharmaceuticals, foods and animal feeds including additives
- Infectious, radioactive and explosive substances.
- Strongly oxidizing substances

7.3. Specific end uses

See section 1.2. No additional information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits

Chemical name	OSHA PEL	OSHA PEL (celing)	ACGIH OEL (TWA)	ACGIH OEL (STEL))
Copper	0.1 mg/m^3	–	0.2 mg/m^3	–

8.2. Exposure controls

Appropriate engineering controls

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

Components with occupational exposure limits:

Copper

Personal protective equipment:

Eye/Face protection:

Wear glasses with side protection.

Skin protection:

Hand protection: The use of resistant protective gloves is recommended.

Body protection: Wear an overall or a lab coat.

Respiratory protection:

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Use suitable respiratory equipment such as MSHA/NIOSH TC-21C or NIOSH approved respirator with N, R, P or HE filter. Wear respiratory protection during operations where spraying or misting occurs. If respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection standard. Wear air supplied respiratory protection if exposure concentrations are unknown.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:

Physical state: Viscous liquid

Color: Dark brown

Odor: Acetous odor

Odor threshold: No data available

	Value	Method	Temperature	Pressure
pH	2.1–3.1	measured	76.7 °F	14.7 psi
Melting point/freezing point	Not available			
Initial boiling point/boiling range	Not available			
Flash point	Not available			
Evaporation rate	Not available			
Flammability (solid, gas)	Not relevant			
Upper/lower flammability or explosive limits	Not relevant			
Vapor pressure	Not available			
Vapor density	Not available			
Relative density	1.18–1.22	measured	76.7 °F	14.7 psi
Solubility(ies)	100% soluble in water			
Partition coefficient: n-octanol/water	Not available			
Auto ignition temperature	Not relevant			
Decomposition temperature	Not available			
Viscosity	Not available			
Explosive Properties	Not relevant			
Oxidizing properties	Not available			

9.2. Other information

None

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

No specific test data related to reactivity available for this product.

10.2. Chemical stability

Stable under ambient conditions

10.3. Possibility of hazardous reactions
None known

10.4. Conditions to avoid
None known

10.5. Incompatible materials
May react explosively with acetylene and potassium chlorate. May react dangerously with strong bases.

10.6. Hazardous decomposition products
None known

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Main routes of exposure:
No data available for occupational handling.

Acute toxicity : Data for hazardous substances.

Substance	Oral, LD50	Dermal, LD50	Inhalation Dust/Mist, LC50
Copper compounds	482 mg/kg (rat)	Not classified	Not classified

*Converted acute toxicity point estimate

Hazard classification

Classification	Hazard description
Acute toxicity	Calculations according to 29 CFR 1910.1200 indicated that the ATEmix 300 < category < 2000 mg/kg. Based on available data, the classification criteria according to 29 CFR 1910.1200 is met. Harmful if swallowed.
Skin corrosion/irritation	Based on available data, the classification criteria according to 29 CFR 1910.1200 are not met.
Serious eye damage/irritation	Copper compounds is classified as Serious Eye Damage, category 1. Based on concentration thresholds the product is also classified as Serious Eye Damage, category 1. Causes serious eye damage.
Respiratory sensitization	Not classifiable due to data lacking.
Skin sensitization	Not classifiable due to data lacking.
Germ cell mutagenicity	Not classifiable due to data lacking.
Carcinogenicity	Not classifiable due to data lacking.
Reproductive toxicity	Based on available data, the classification criteria are not met.
STOT—single exposure	Based on available data, the classification criteria are not met.
STOT—repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Not classifiable due to data lacking.

Other information:
Main toxic effects

Acute effects: No information available on product

Chronic effects: No information available on product

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Aquatic toxicity

Acute (short-term) toxicity to fish

	Effect dose/concentration	Value	Test duration	Species
Copper	LC50	0.31 mg/l	96 h	Fathead Minnows & Japanese Eel
	LC50	0.89 mg/l	96 h	Bluegill Sunfish

Acute (short-term) toxicity to crustacea

	Effect dose/concentration	Value	Test duration	Species
Copper	LC50	0.04 mg/l	48 h	*Daphnia magna*
	EC50	0.06 mg/l	48 h	Planktonic Crustacea of Quebec Lakes

Acute (short-term) toxicity to algae

	Effect dose/concentration	Value	Test duration	Species
Copper	EC50	0.07 mg/l	72 h	*Selenastrum capricornutum*

Assessment/Classification: Based on available data, the classification criteria are not met.

12.2. Persistence and degradability
Not classifiable due to data lacking

12.3. Bio accumulative potential
Not classifiable due to data lacking

12.4. Mobility in soil
Not classifiable due to data lacking

12.5. Results of persistent, bioaccumulating and toxic and very persistent and very bioaccumulating assessment
Not classifiable due to data lacking

12.6. Other adverse effects
None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
If there is no way of recycling it must be disposed of in compliance with the respective national and local regulations.

Collection of small amounts of product:

Do not put waste into sink or dust bin. Collect in container for toxic, inorganic residues and heavy metals salts and their solution. Adjust product to a pH of 6 – 8. Collection vessels must be clearly labeled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.

SECTION 14: TRANSPORT INFORMATION

UN Number: Not applicable.
UN Proper shipping name: Not applicable.
Transport hazard class: Not regulated as a dangerous good.
Transport in bulk according to IMO instrument: Not available.
Department of Transportation: Not regulated as a hazardous material by Department of Transportation.
International Airport Transport Association: Not regulated as a dangerous good.
International Maritime Dangerous Goods: Not regulated as a dangerous good.
Special precautions for user: None known.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health, and environmental regulations/legislation specific for the substance or mixture
HCS Regulatory 2012; 29 CFR 1910.1200

15.2.Chemical safety assessment
No chemical safety assessment was completed for this product.

SECTION 16: OTHER INFORMATION

16.1. Indication of changes
First revision

16.2. Abbreviations and acronyms
ACGIH: American Conference of Governmental Industrial Hygienists'
ATE: Acute toxicity estimate
DOT: Department of transportation
EC50: Half maximal effective concentration
HCS: Hazard Communication Standard
IATA: International Airport Transport Association
IMDG: International Maritime Dangerous Goods
LC50: Lethal concentration required to kill 50% of the population
MSHA: Mine Safety and Health Administration
NOISH: National Institute for Occupational Safety and Health
SDS: Safety Data Sheet
STOT: Specific Target Organ Toxicity

16.3. Key literature references and sources for data

C&L Inventory - ECHA [WWW Document], n.d. URL https://echa.europa.eu/information-on-chemicals/cl-inventory-database (accessed 6.6.19).

Erickson, R.J., D.A. Benoit, V.R. Mattson, H.P. Nelson Jr., and E.N. Leonard 1996. The Effects of Water Chemistry on the Toxicity of Copper to Fathead Minnows. Environ.Toxicol.Chem. 15(2):181-193

GESTIS Substance database [WWW Document], n.d. URL http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates$fn=default.htm$vid=gestiseng:sdbeng$3.0 (accessed 6.6.19).

HAZARD COMMUNICATION: Hazard Classification Guidance for Manufacturers, Importers, and Employers, n.d.

Lalande, M., and B. Pinel-Alloul 1984. Heavy Metals Toxicity on Planktonic Crustacea of the Quebec Lakes (Toxicite des Metaux Lourds sur les Crustaces Planctoniques des Lacs du Quebec). Sci.Tech.Eau 17(3):253-259 (FRE) (ENG ABS)

McWilliam, R.A., and D.J. Baird 2002. Postexposure Feeding Depression: A new Toxicity Endpoint for Use in Laboratory Studies with Daphnia magna. Environ.Toxicol.Chem. 21(6):1198-1205

OSHA Occupational Chemical Database | Occupational Safety and Health Administration [WWW Document], n.d. URL https://www.osha.gov/chemicaldata/ (accessed 6.6.19).

Soucek, D.J., and G.P. Noblet 1998. Copper Toxicity to the Endoparasitic Trematode (Posthodiplostomum minimum) Relative to Physid Snail and Bluegill Sunfish Intermediate Hosts. Environ.Toxicol.Chem. 17(12):2512-2516

Yang, H.N., and H.C. Chen 1996. The Influence of Temperature on the Acute Toxicity and Sublethal Effects of Copper, Cadmium and Zinc to Japanese Eel, Anguilla japonica. Acta Zool.Taiwanica 7(1):29-38

16.4. Classification for mixtures and used evaluation method according to 29 CFR 1910.1200

Classification based on calculation or concentration thresholds. See SECTION 2.1 (classification).

16.5. Relevant H-phrases (number and full text)

Not applicable

16.6. Training advice

Not relevant

16.7. Further information

This SDS summarizes to the best of our knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace.