Product name: **15% Copper Micro Mix**

SECTION 1: Identification

Product identifier used on the label:
Product Name: **15% Copper Micro Mix.**

Other means of identification:
Synonyms: None available
Product Code Number: 2CU150000K00, 2CU152000T00, 2CU152210B50, 2CU1522BEB55, 2CU152500B50.
SDS number: CC003US

Recommended use of the chemical and restrictions on use:
Recommended use: Fertilizer Micronutrient Additive.
Recommended restrictions: Not intended for human consumption.

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party:

Company Name: Cameron Chemicals, Inc.
Company Address: 830 Old Dill Road,
Suffolk, VA 23434
Company Telephone: (757) 934-2142
8.00am to 5.00pm

Company Contact Name Mark Whitfield
Company Contact Email mwhitfield@cameronchemicals.com

Emergency phone number: Chemtrec USA: 800-424-9300 (24hrs)

SECTION 2: Hazard(s) identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200:

Physical hazards
No physical hazards under GHS.

Health hazards
Acute toxicity, Oral, Category 4.
Skin irritation, Category 2.
Serious eye damage, Category 1.

Environmental hazards
Not adopted under OSHA GHS

GHS Signal word: **DANGER.**

GHS Hazard statement(s):
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage

GHS Hazard symbol(s):

GHS Precautionary statement(s):

Prevention:
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wear protective gloves/protective clothing/eye protection/face protection.

Response:
- If swallowed: Call a poison center/doctor if you feel unwell.
- If on skin: Wash with plenty of water.
- 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/doctor.
- Specific treatment (see sections 4 to 8 on this SDS and any additional information on this label).
- Rinse mouth.
- If skin irritation occurs: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.

Storage:
No Storage statements required.

Disposal:
- Dispose of contents/container to a suitable treatment site in accordance with local/regional/international regulations.

Hazard(s) not otherwise Classified (HNOC): None known.

Percentage of ingredient(s) of unknown acute toxicity:
68% of the mixture consists of ingredients of unknown acute toxicity (oral).

98% of the mixture consists of ingredients of unknown acute toxicity (dermal/inhalation).

SECTION 3: Composition/information on ingredients

Mixture: Mixture of Oxides & Sulfates of Copper and Zinc.

Chemical name	CAS#	Concentration (weight %)
Copper Sulfate	7758-98-7	20 - 40%
Zinc Sulfate	7733-02-0	20 - 40%
Copper Oxide	1317-38-0	10 - 15%
Zinc Oxide	1314-13-2	5 -10%
Iron Oxide	1309-37-1	2 - 5%
Calcium Oxide	1305-78-8	1 - 5%

Note: The balance of the ingredients are not classified as hazardous or are below the concentration limit to be classified as hazardous, under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

SECTION 4: First-aid Measures

Description of necessary measures:
Inhalation: Remove to a fresh air environment. Seek medical attention.

Skin contact: Wash with plenty of water. Seek medical attention if irritation persists.

Eye contact: Wash the eyes with running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

Ingestion: Induce vomiting (lean victim forward to reduce risk of aspiration). Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Obtain medical attention.

Most important symptoms/effects, acute and delayed:
Eye irritation may occur. Prolonged dermal exposure may cause skin irritation. Ingestion may cause stomach upset. Occasional mild irritation effects to the nose and throat may occur from inhalation.

Indication of immediate medical attention and special treatment needed, if necessary: If any symptoms are observed, contact a physician and give them this SDS sheet. Treat symptomatically.

SECTION 5: Fire-fighting measures

Suitable extinguishing media: Product is not combustible. Use extinguishing media that is suitable for surrounding materials.
Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical:
None expected.

Special protective equipment and precautions for fire-fighters: Wear self-contained breathing apparatus and protective clothing. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: Ensure adequate ventilation. Evacuate personnel to safe areas. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Methods and materials for containment and cleaning up:
Small Spills: Sweep up and try to keep dust to a minimum.
Large Spills: Sweep up and try to keep dust to a minimum.
Containment: Do not release into sewers or waterways.
See Section 13 for information on appropriate disposal.

SECTION 7: Handling and Storage

Precautions for safe handling: Use proper safety equipment at all times. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Wash hands before breaks and at the end of work. Clothing being used around chemicals should be cleaned daily.

Conditions for safe storage, including any incompatibles:
Store materials in a cool dry place. Store only in the original container. Keep container tightly closed.

SECTION 8: Exposure controls/personal protection

OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available:

Substance	**PEL-TWA (8 hour)**	**PEL-STEL (15 min)**
Copper Sulfate	1 mg/m3	None known
Zinc Sulfate (Zinc compounds)	5 mg/m^3	None known
Copper Oxide	1 mg/m3	None known
Zinc Oxide	5 mg/m^3	None known
Iron Oxide	5 mg/m^3	None known
Calcium Oxide	5 mg/m^3	None known

US ACGIH Threshold Limit Values			
Substance	**TLV-TWA**	**TLV-STEL**	**REMARKS**
Copper Sulfate (as Cu dusts)	1 mg/m3	None known	n/a
Zinc Sulfate (Zinc compounds)	10 mg/m^3	None known	n/a
Copper Oxide (as Cu dusts)	1 mg/m^3	None known	n/a
Zinc Oxide	2 mg/m^3	10 mg/m^3	Metal fume fever
Iron Oxide	5 mg/m^3	None known	Pneumoconiosis Not classifiable as a human carcinogen
Calcium Oxide	2 mg/m^3	None known	Upper Respiratory Tract irritation

US NIOSH Recommended Exposure Limits		
Substance	**TLV-TWA**	**TLV-STEL**
Copper Sulfate	1 mg/m^3	None known
Zinc Sulfate	None known	None known
Copper Oxide	0.1 mg/m^3	None known
Zinc Oxide	5 mg/m^3	10 mg/m^3
Zinc Sulfate	None known	None known
Iron Oxide	5 mg/m^3	None known
Calcium Oxide	2 mg/m^3	None known

Appropriate engineering controls: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Skin and Hand protection: Wear protective gloves, boots, and aprons to prevent prolonged or repeated skin contact.
Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other:
Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. Consider periodic medical exams of exposed workers with emphasis on skin, respiratory, and blood screening.

Thermal hazards: None established.

SECTION 9: Physical and chemical properties

Appearance (physical state, color, etc.):	Granular solid
Color:	Gray to black.
Odor:	No odor.
Odor threshold:	Not determined
pH:	5-6 (1/100 dilution)
Melting point/freezing point:	No data available
Initial Boiling Point and	No data available

boiling range:	
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	Not flammable
Upper/lower flammability or explosive limits	
Flammability limit – lower %):	No data available
Flammability limit – upper (%):	No data available
Explosive limit – lower (%):	No data available
Explosive limit – upper (%):	No data available
Vapor pressure:	No data available
Vapor density (air=1):	No data available
Relative density (water = 1):	1.1 – 1.5
Solubility(ies):	Partially Soluble
Partition coefficient n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	Not established
Viscosity:	No data available
Density:	85lbs Cubic Foot

SECTION 10: Stability and Reactivity

Reactivity:	Stable.
Chemical stability:	This product is stable at room temperature in closed containers under normal storage and handling conditions.
Possibility of hazardous reactions:	Hazardous polymerization cannot occur.
Conditions to avoid:	Avoid moisture.
Incompatible materials:	Strong oxidizing agents.
Hazardous decomposition products:	None expected.

SECTION 11: Toxicological information

Information on likely routes of exposure:

Inhalation:	Inhalation is the most significant route of exposure in occupational and other settings.
Ingestion:	An expected route of entry. Ingestion may cause stomach upset.
Skin:	An expected route of entry. Prolonged dermal exposure may cause skin irritation.
Eyes:	Not a primary route of entry but may cause irritation.
Target Organ(s):	Eyes, Skin, Respiratory system.

Symptoms related to the physical, chemical, and toxicological characteristics:

Eye irritation may occur. Ingestion may cause stomach upset. Occasional mild irritation effects to the nose and throat may occur from inhalation.

Delayed and immediate effects and chronic effects from short or long-term exposure:
Prolonged dermal exposure may cause skin irritation.

Numerical measures of toxicity:

Acute toxicity estimates:

Ingredient Information:

Substance	Test Type (species)	Value
Copper Sulfate	LD_{50} Oral (Rat)	482 mg/kg
	LD_{50} Intraperitoneal (Rat)	20 mg/kg
	LD_{50} Subcutaneous (Rat)	43 mg/kg
	LD_{50} Intravenous (Rat)	48.9 mg/kg
Zinc Sulfate	LD_{50} Oral (Rat)	No known data
	LD_{50} Dermal (Rat)	No known data
	LC_{50} Inhalation (Rat)	No known data
Copper Oxide	LD_{50} Oral (Rat)	> 2500 mg/kg
	LD_{50} Dermal (Rat)	> 2000 mg/kg
	LC_{50} Inhalation (Rat)	No known data
Zinc Oxide	LD_{50} Oral (Mouse)	7950 mg/kg
	LD_{50} Dermal (Rat)	No known data
	LC_{50} Inhalation (Mouse)	2500 mg/m^3
Iron Oxide	LD_{50} Oral (Rat)	No known data
	LD_{50} Dermal (Rat)	No known data
	LC_{50} Inhalation (Rat)	No known data
Calcium Oxide	LD_{50} Oral (Rat)	No known data
	LD_{50} Dermal (Rat)	No known data
	LC_{50} Inhalation (Rat)	No known data

Skin corrosion/irritation: Prolonged dermal exposure may cause skin irritation.

Serious eye damage/eye irritation: May cause eye irritation.

Respiratory sensitization: No information available on the mixture, however none of the components have been classified as a respiratory sensitizer (or are below the concentration threshold for classification).

Skin sensitization: No information available on the mixture, however none of the components have been classified as a skin sensitizer (or are below the concentration threshold for classification).

Germ cell mutagenicity: No information available on the mixture, however none of the components have been classified as causing germ cell mutagenicity (or are below the concentration threshold for classification).

Carcinogenicity: No information available on the mixture, however none of the components are listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

Reproductive toxicity: No information available on the mixture, however none of the components have been classified as causing reproductive toxicity (or are below the concentration threshold for classification).

Specific target organ toxicity-Single exposure: No information available on the mixture, however none of the components have been classified as Specific target organ toxicity, single exposure (or are below the concentration threshold for classification).

Specific target organ toxicity-Repeat exposure: No information available on the mixture, however none of the components have been classified as causing Specific target organ toxicity, repeat exposure (or are below the concentration threshold for classification).

Aspiration hazard: No information available on the mixture, however none of the components have been classified as causing an aspiration (or are below the concentration threshold for classification).

SECTION 12: Ecological information

Ecotoxicity (aquatic and terrestrial, where available):

Ingredient Information:

Substance	Test Type	Species	Value
Copper Sulfate	LC_{50}	Fish – Other fish	1 - 2.5 mg/l - 96h
	EC_{50}	Invertebrate - Daphnia magna (Water flea)	0.024 mg/l - 48h
	EC_{50}	Algae	No data available

Zinc Sulfate	LC_{50}	Fish	No data available
	EC_{50}	Invertebrate	No data available
	EC_{50}	Algae	No data available
Copper Oxide	LC_{50}	Fish - Oncorhynchus mykiss (rainbow trout)	0.19 - 0.21 mg/l - 96h
	EC_{50}	Invertebrate - Daphnia magna (Water flea)	0.011 - 0.039 mg/l - 48h
	NOEC	Algae - - Phaeodactylum tricornutum	0.0057 mg/l - 72h
Zinc Oxide	LC_{50}	Fish - Oncorhynchus mykiss (rainbow trout)	1.1 mg/l – 96h
	EC_{50}	Invertebrate - Daphnia magna (Water flea)	0.098 mg/l – 48h
	EC_{50}	Algae	No data available
Iron Oxide	LC_{50}	Fish	No data available
	EC_{50}	Invertebrate	No data available
	EC_{50}	Algae	No data available
Calcium Oxide	LC_{50}	Fish - Cyprinus carpio (Carp)	1070 mg/l - 96 h
	EC_{50}	Invertebrate	No data available
	EC_{50}	Algae	No data available

Persistence and Degradability: Not determined
Bioaccumulative Potential: This material is not expected to bioconcentrate in fish.
Mobility in Soil: On soil this product may leach into the groundwater. Because it is slightly soluble, removal by rain, snow or other precipitation is possible

Other adverse effects (such as hazardous to the ozone layer): No additional information available.

SECTION 13: Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

Product - Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations. This product has been evaluated for RCRA characteristics and should not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting materials hazardous.

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Contaminated packaging - Contaminated packaging may contain residues of product. Dispose of in the same manner as product. Comply with applicable local, state or international regulations concerning solid or hazardous waste disposal and/or container disposal.

SECTION 14: Transport Information

Land transport DOT

UN number	UN 3077
UN proper shipping name	Environmentally hazardous substance, solid, N.O.S. (Copper oxide, Copper sulfate, Zinc oxide, Zinc sulfate)
Transport hazard class(es)	9
Packing group, if necessary	III

Maritime transport IMDG

UN number	UN 3077
UN proper shipping name	Environmentally hazardous substance, solid, N.O.S. (Copper oxide, Copper sulfate, Zinc oxide, Zinc sulfate)
Transport hazard class(es)	9
Packing group, if necessary	III

Air transport ICAO-TI and IATA-DGR

UN number	UN 3077
UN proper shipping name	Environmentally hazardous substance, solid, N.O.S. (Copper oxide, Copper sulfate, Zinc oxide, Zinc sulfate)
Transport hazard class(es)	9
Packing group, if necessary	III

Environmental hazards
Marine pollutant: Yes.

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)
No further relevant information available.

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.
None.

SECTION 15: Regulatory Information

Safety, health and environmental regulations specific for the product in question.

USA:

United States Federal Regulations: This SDS complies with the OSHA, 29 CFR 1910.1200. This product is hazardous under OSHA.

Toxic Substances Control Act (TSCA) – This substance is listed, as required, on the TSCA inventory.

SARA Title III
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): None

Section 311/312 (40 CFR 370):
Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: No
Pressure Hazard: No
Reactivity Hazard: No

Section 313 Toxic Release Inventory (40 CFR 372): Copper sulfate, Copper oxide, Zinc oxide and Zinc Sulfate are listed.

STATE REGULATIONS:

This SD'S contains specific health and safety data is applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

California Proposition 65 (California Safe Drinking Water and Toxic Enforcement Act of 1986:
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Massachusetts Right to Know: Copper sulfate, Zinc oxide**,** Zinc Sulfate, Iron Oxide (as Diiron trioxide) and Calcium oxide are listed on the Massachusetts Right to Know List.

New Jersey Right to Know: Copper sulfate, Copper oxide, Zinc oxide**,** Zinc Sulfate, Iron Oxide (as Diiron trioxide) and Calcium oxide are listed on the New Jersey Right to Know list.

Pennsylvania Right to Know: Copper sulfate, Copper oxide, Zinc oxide**,** Zinc Sulfate, Iron Oxide (as Diiron trioxide) and Calcium oxide are listed on the Pennsylvania Right to Know List.

SECTION 16: Other information, including date of preparation or last revision

Revision Date: Oct 02, 2015

NFPA Rating
Health hazard: 1
Fire Hazard: 0
Reactivity Hazard: 0

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