

Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS)

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: Copper Sulfate, 3% (w/v) in 3% (v/v) Sulfuric Acid

Product Number: R2371500

Other Identifying Product Numbers: R2371500-4A

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

1.3. Details of the Supplier of the Safety Data Sheet

Company: Ricca Chemical Company

Address: 448 West Fork Drive

Arlington, TX 76012 USA

Telephone: 888-467-4222

1.4. Emergency Telephone Number (24 hours)

CHEMTREC (USA)

800-424-9300

CHEMTREC (International)

1+ 703-527-3887

SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

Hazard Class	Category	Hazard Statements	Precautionary Statements:
Acute Toxicity - Inhalation	Category 4	H332	P261, P271, P304+P340, P312
Skin Corrosion / Irritation	Category 1	H314	P260, P264, P280, P301+P330+P331, P303+P361+P353, P363, P304+P340, P310, P321, P305+P351+P338, P405, P501
Eye Damage / Irritation	Category 2	H319	P264, P280, P305+P351+P338, P337+P313
Hazardous to the Aquatic Environment (Acute)	Category 1	H400	P273, P391, P501
Hazardous to the Aquatic Environment (Chronic)	Category 2	H411	P273, P391, P501

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2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements:

Precautionary Number	Precautionary Statement
P260	Do not breathe fumes, mist, vapors, or spray.
P261	Avoid breathing fumes, mist, vapors, or spray.
P264	Wash arms, hands and face thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or physician.
P312	Call a POISON CENTER or physician if you feel unwell.
P321	Specific treatment (Wash areas of contact with water. If possible, wipe off areas of contact with dry cloth before flushing with water).
P337+P313	If eye irritation persists: Get medical attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents in accordance with local, state, federal and international regulations.

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2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	94.12
Copper Sulfate Pentahydrate	CuSO ₄ ·5H ₂ O	249.68 g/mol	7758-99-8	2.97
Sulfuric Acid	H ₂ SO ₄	98.07 g/mol	7664-93-9	2.91

SECTION 4: First-Aid Measures

4.1. General First Aid Information

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. May cause irritation, redness, pain, and tearing.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Skin Contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. May cause slight irritation.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Dilute immediately with water or milk. Induce vomiting. Call a physician.

4.2. Most Important Symptoms and Effects, Acute and Delayed

Causes severe skin burns and eye damage. Causes serious eye irritation. Harmful if inhaled. Caution! Hazardous liquid. Avoid ingestion or contact with skin, eyes, or clothing. If ingested, dilute with water or milk and induce vomiting. Call a physician. Wash areas of contact with plenty of water for 15 minutes. For eyes, get medical attention. EYE CONTACT: May cause irritation, redness, pain, and tearing. SKIN CONTACT: May cause slight irritation.

4.3. Medical Attention or Special Treatment Needed

Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water. If possible, wipe off areas of contact with dry cloth before flushing with water). Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Flush with plenty of water for at least 15 minutes. Call a physician if irritation develops. Dilute immediately with water or milk. Induce vomiting. Call a physician.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.



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5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard.

5.3. Special Protective Equipment for Firefighters

Use protective clothing and NIOSH-approved breathing equipment appropriate for the surrounding fire.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

6.2. Cleanup and Containment Methods and Materials

Absorb with suitable inert material (vermiculite, dry sand, etc) and place in a chemical waste container for proper disposal. Do not flush to sewer. Dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store locked up. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage.

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SECTION 8: Exposure Controls / Personal Protection

8.1 Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Sulfuric Acid (7664-93-9)	TWA	USA	1 mg/m ³ TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Sulfuric Acid (7664-93-9)	TLV-TWA	USA	0.2 mg/m ³ TWA (thoracic particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	"1 mg/m ³ TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	"1 mg/m ³ TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	"1 mg/m ³ TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	1 mg/m ³ TWA (dust and mist, as Cu)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	"1 mg/m ³ TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	"1 mg/m ³ TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper Sulfate Pentahydrate (7758-99)	TLV-TWA	USA	"1 mg/m ³ TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

8.2. Exposure Controls

Engineering Controls: Use only outdoors or in a well-ventilated area. No specific controls are needed. Normal room ventilation is adequate.

Respiratory Protection: Normal room ventilation is adequate.

Skin Protection: Wear protective gloves and eye protection. Chemical resistant gloves.

Eye Protection: Wear protective gloves and eye protection. Safety glasses or goggles.

8.3. Personal Protective Equipment

Wear protective gloves and eye protection. Normal room ventilation is adequate. Chemical resistant gloves. Safety glasses or goggles.



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SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Blue liquid

Physical State: Liquid

Odor: Data not available.

Odor Threshold: Data not available.

pH: Data not available.

Melting/Freezing Point: Approximately 0°C

Initial Boiling Point/Range: Approximately 100°C - Approximately 100°C

Flash Point: Data not available.

Evaporation Rate: Data not available.

Flammability: Data not available.

Flammability/Explosive Limits: Data not available.

Vapor Pressure: Data not available.

Vapor Density: Data not available.

Relative Density: 1.0

Solubility: Miscible

Partition Coefficient: Data not available.

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

Viscosity: Data not available.

Explosive Properties: Data not available.

Oxidizing Properties: Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

10.2. Possibility of Hazardous Reactions

Data not available.

10.3. Conditions to Avoid and Incompatible Materials

Hydroxylamine, alkalis, phosphates, hydrazine, sulfuric acid, finely powdered metals, active metals (Potassium, Sodium, Magnesium and Zinc).

10.4. Hazardous Decomposition Products

Will not occur.



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SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not applicable.

Acute Toxicity - Dermal Exposure:

Not applicable.

Acute Toxicity - Inhalation Exposure:

Harmful if inhaled. Avoid breathing fumes, mist, vapors, or spray. Use only outdoors or in a well-ventilated area. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Acute Toxicity - Other Information:

LD50, Oral, Rat: 300 mg/kg (Copper Sulfate), details of toxic effects not reported other than lethal dose value. LD50, Oral, Rat: 2140 mg/kg (Sulfuric Acid), details of toxic effects not reported other than lethal dose value. LC50, Inhalation, Rat: (Sulfuric Acid) 510 mg/m³/2H, No toxic effect noted.

Skin Corrosion and Irritation:

Causes severe skin burns and eye damage. Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water. If possible, wipe off areas of contact with dry cloth before flushing with water). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Serious Eye Damage and Irritation:

Causes serious eye irritation. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Respiratory Sensitization:

Not applicable.

Skin Sensitization:

Not applicable.

Germ Cell Mutagenicity:

Not applicable.

Carcinogenicity:

Not applicable.

Reproductive Toxicity:

Not applicable.

Specific Target Organ Toxicity from Single Exposure:

Not applicable.



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Specific Target Organ Toxicity from Repeated Exposure:

Not applicable.

Aspiration Hazard:

Not applicable.

Additional Toxicology Information:

Data not available.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Very toxic to aquatic life. Avoid release to the environment. Collect spillage. Dispose of contents in accordance with local, state, federal and international regulations. Toxic to aquatic life with long lasting effects. Avoid release to the environment. Collect spillage. Dispose of contents in accordance with local, state, federal and international regulations.

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in Soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.



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SECTION 14: Transportation Information

14.1. Transportation by Land-Department of Transportation (DOT, United States of America)

Not regulated according to DOT Regulations.

14.2. Transportation by Air - International Air Transport Association (IATA)

Not regulated according to IATA Dangerous Goods Regulations.

14.3 Transportation of Dangerous Goods (TDG, Canada)

Not regulated according to TDG Regulations.

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SECTION 15: Regulatory Information

15.1. Occupational Safety and Health Administration (OSHA) Hazards

Not listed.

15.2. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Sulfuric Acid (CAS # 7664-93-9): 1000 lb EPCRA RQ

Sulfuric Acid (CAS # 7664-93-9): 1000 lb TPQ

15.3. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Sulfuric Acid (CAS # 7664-93-9): 1000 lb final RQ; 454 kg final RQ

Copper Sulfate Pentahydrate (CAS # 7758-99-8): 10 lb final RQ; 4.54 kg final RQ

15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Sulfuric Acid (CAS # 7664-93-9): 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

Copper Sulfate Pentahydrate (CAS # 7758-99-8): "1.0 % de minimis concentration (includes any unique chemical substance that contains Copper as part of that chemical's infrastructure except for CAS numbers 147-14-8, 1328-53-6, or 14302-13-7, or copper phthalocyanine compounds that are substituted with only Hydrogen and/or Bromine and/or Chlorine that meet the molecular structure specified within the regulation, listed under Chemical Category N100)" As Copper compounds [RR-00595-8]

Copper Sulfate Pentahydrate (CAS # 7758-99-8): 1.0 % de minimis concentration (includes any unique chemical substance that contains Copper as part of that chemical's infrastructure except for CAS numbers 147-14-8, 1328-53-6, or 14302-13-7, or copper phthalocyanine compounds that are substituted with only Hydrogen and/or Bromine and/or Chlorine that meet the molecular structure specified within the regulation, listed under Chemical Category N100)

15.5. Massachusetts Right-to-Know Substance List

Sulfuric Acid (CAS # 7664-93-9): Extraordinarily hazardous

Sulfuric Acid (CAS # 7664-93-9): Present

Copper Sulfate Pentahydrate (CAS # 7758-99-8): Present

15.6. Pennsylvania Right-to-Know Hazardous Substances

Sulfuric Acid (CAS # 7664-93-9): Environmental hazard

Sulfuric Acid (CAS # 7664-93-9): Environmental hazard (listed under Sulfuric acid)

Sulfuric Acid (CAS # 7664-93-9): Present

Sulfuric Acid (CAS # 7664-93-9): Present (listed under Sulfuric acid)

Water (CAS # 7732-18-5): "Present" As Ethyl alcohol and water [RR-00802-6]

Water (CAS # 7732-18-5): Present

Copper Sulfate Pentahydrate (CAS # 7758-99-8): "Environmental hazard" As Copper compounds [RR-00595-8]

Copper Sulfate Pentahydrate (CAS # 7758-99-8): "Present" As Copper compounds [RR-00595-8]

Copper Sulfate Pentahydrate (CAS # 7758-99-8): Environmental hazard

Copper Sulfate Pentahydrate (CAS # 7758-99-8): Present

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15.7. New Jersey Worker and Community Right-to-Know Components

Sulfuric Acid (CAS # 7664-93-9): carcinogen; corrosive; reactive - second degree

Sulfuric Acid (CAS # 7664-93-9): sn 1761

Sulfuric Acid (CAS # 7664-93-9): SN 1761 500 lb TPQ

Sulfuric Acid (CAS # 7664-93-9): sn 1762

Copper Sulfate Pentahydrate (CAS # 7758-99-8): "SN 2215 500 lb TPQ (except C.I. Pigment Blue 15 (CAS 147-14-8), C.I. Pigment Green 7 (CAS 1328-53-6), and C.I. Pigment Green 36 (CAS 14302-13-7), and Copper phthalocyanine compounds that are substituted with only Hydrogen, and/or Chlorine, and/or Bromine, Category Code N100. Includes any unique chemical substance that contains the named metal as part of that chemical structure)" As Copper compounds [RR-00595-8]

Copper Sulfate Pentahydrate (CAS # 7758-99-8): "sn 2215" As Copper compounds [RR-00595-8]

Copper Sulfate Pentahydrate (CAS # 7758-99-8): sn 0549

Copper Sulfate Pentahydrate (CAS # 7758-99-8): sn 2215

Copper Sulfate Pentahydrate (CAS # 7758-99-8): SN 2215 500 lb TPQ (except C.I. Pigment Blue 15 (CAS 147-14-8), C.I. Pigment Green 7 (CAS 1328-53-6), and C.I. Pigment Green 36 (CAS 14302-13-7), and Copper phthalocyanine compounds that are substituted with only Hydrogen, and/or Chlorine, and/or Bromine, Category Code N100. Includes any unique chemical substance that contains the named metal as part of that chemical structure)

15.8. California Proposition 65

Sulfuric Acid (CAS # 7664-93-9): "carcinogen, 3/14/2003" As Strong inorganic acid mists containing sulfuric acid [RR-03978-1]

Sulfuric Acid (CAS # 7664-93-9): carcinogen, 3/14/2003

15.9. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Sulfuric Acid (CAS # 7664-93-9): Present (DSL)

Water (CAS # 7732-18-5): Present (DSL)

Copper Sulfate Pentahydrate (CAS # 7758-99-8): Present (DSL)

15.10. United States of America Toxic Substances Control Act (TSCA) List

All components of this solution are listed as active on the TSCA Inventory or are mixtures (hydrates) of active items listed on the TSCA Inventory.

Sulfuric Acid (CAS # 7664-93-9): Present (ACTIVE)

Water (CAS # 7732-18-5): Present (ACTIVE)

Copper Sulfate Pentahydrate (CAS # 7758-99-8): Present (ACTIVE)

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Sulfuric Acid (CAS # 7664-93-9): 231-639-5

Water (CAS # 7732-18-5): 231-791-2

Copper Sulfate Pentahydrate (CAS # 7758-99-8): 231-847-6

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SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

Causes severe skin burns and eye damage. Causes serious eye irritation. Harmful if inhaled. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves and eye protection.

IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 physician. Specific treatment (Wash areas of contact with water. If possible, wipe off areas of contact with dry cloth before flushing with water). If eye irritation persists: Get medical attention. Wash contaminated clothing before reuse. Collect spillage.

Store locked up.

Dispose of contents in accordance with local, state, federal and international regulations.

16.2. Miscellaneous Hazard Classes

Canadian Carcinogenicity Hazard Class: Not Applicable.

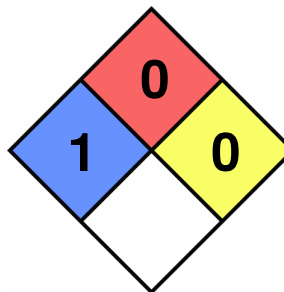
Physical Hazards Not Otherwise Classified (PHNOC): Not Applicable.

Health Hazards Not Otherwise Classified (HHNOC): Not Applicable.

Biohazardous Infectious Materials Hazard Class: Not Applicable.

16.3. National Fire Protection Association (NFPA) Rating

Health: 1
Flammability: 0
Reactivity: 0
Special Hazard:



16.4. Document Revision

Last Revision Date: 2023-11-13

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.