



Material Safety Data Sheet Copper Sulfate-Sulfamic Acid Solution

Section 1 - Chemical Product and Company Identification

MSDS Name:

Copper Sulfate-Sulfamic Acid Solution

Catalog Numbers:

LC13470

Synonyms:

None

Company Identification:

LabChem Inc
200 William Pitt Way
Pittsburgh, PA 15238

Company Phone Number:

(412) 826-5230

Emergency Phone Number:

(800) 424-9300

CHEMTREC Phone Number:

(800) 424-9300

Section 2 – Composition, Information on Ingredients

| CAS# | Chemical Name: | Percent |
|-----------|-----------------------------|---------|
| 7732-18-5 | Water | balance |
| 7758-99-8 | Cupric sulfate pentahydrate | 5 |
| 5329-14-6 | Sulfamic acid | 3.2 |
| 64-19-7 | Acetic acid | 2.5 |

Section 3 - Hazards Identification

Emergency Overview

Appearance: *Clear, blue solution***Warning!** Corrosive. Causes eye and skin burns. Causes digestive tract burns. May cause skin sensitization. Marine pollutant.**Target Organs:** *Eyes, skin, mucous membranes, teeth, blood, kidneys, liver***Potential Health Effects****Eye:**

Causes eye burns. Eye contact may result in conjunctivitis, ulceration, and corneal abnormalities.

Skin:

Causes skin irritation and burns. May cause skin sensitization. May cause itching eczema.

Ingestion:

May cause severe gastrointestinal tract irritation or burns with nausea and vomiting. Ingestion of large amounts of copper sulfate may cause bloody stools and vomit, low blood pressure, jaundice,



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and coma. May produce systemic toxic effects to the kidney and liver, and central nervous system excitation followed by depression. May cause polyuria, oliguria, or anuria.

Inhalation:

Causes irritation or burns to respiratory tract. May lead to bronchitis, pharyngitis, and dental erosion.

Chronic:

May cause erosion of dental enamel, bronchitis, eye irritation, darkening of the skin, and chronic inflammation of the respiratory tract. May cause occupational asthma or skin sensitization. May cause liver and kidney damage. May cause anemia and other blood cell disorders. Laboratory experiments have resulted in mutagenic effects.

Section 4 - First Aid Measures

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid at once. Wash clothing before reuse.

Ingestion:

Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid at once.

Inhalation:

Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

Notes to Physician:

Persons with pre-existing skin disorders or impaired respiratory or pulmonary function may be at increased risk. Individuals with Wilson's disease are more susceptible to chronic copper poisoning.

Antidote:

The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel.

Section 5 - Fire Fighting Measures

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Reacts with most metals to form flammable hydrogen gas. Vapors are heavier than air and may collect in low or confined areas.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Autoignition Temperature:

No information found.

Flash Point:

No information found.

NFPA Rating:

CAS# 7732-18-5: Health- 0, Flammability- 0, Instability- 0.



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CAS# 7758-99-8: Health- 2, Flammability- 0, Instability- 1.

CAS# 5329-14-6: Health- 3, Flammability- 0, Instability- 0.

CAS # 64-19-7: Health- 3, Flammability- 2, Instability- 0.

Explosion Limits:

Lower: N/A Upper: N/A

Section 6 - Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb liquid with inert or neutralizing substance such as fuller's earth, cement powder, fly ash, sand. Scoop material into suitable (plastic or glass) container, and label for disposal. Shut off ignition sources; avoid vapors. Isolate and ventilate spill area.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Avoid breathing dust, vapor, mist, or gas. Avoid contact with eyes, skin, and clothing.

Storage:

Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from heat and flame. Keep from contact with oxidizing materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits:

| Chemical Name: | ACGIH | NIOSH | OSHA |
|-----------------------------|---|--|--------------------------------------|
| Water | None listed | None listed | None listed |
| Cupric sulfate pentahydrate | None listed | 1 mg/m ³ TWA (listed as Copper compounds, nos.) | None listed |
| Sulfamic acid | None listed | None listed | None listed |
| Acetic acid | 10 ppm TWA; 25 mg/m ³ TWA | 10 ppm TWA; 25 mg/m ³ TWA; 50 ppm IDLH | 10 ppm TWA; 25 mg/m ³ TWA |

OSHA Vacated PELs:

Acetic acid: 10 ppm TWA; 25 mg/m³ TWA

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.



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Skin:

Wear appropriate gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

| | |
|-----------------------------------|-------------------|
| Physical State: | Liquid |
| Color: | Blue |
| Odor: | Mild vinegar-like |
| pH: | Acidic |
| Vapor Pressure: | Not available |
| Vapor Density: | Not available |
| Evaporation Rate: | Not available |
| Viscosity: | Not available |
| Boiling Point: | Not available |
| Freezing/Melting Point: | Not available |
| Decomposition Temperature: | Not available |
| Solubility in water: | Soluble |
| Specific Gravity/Density: | 1.0 -1.05 |
| Molecular Formula: | Not applicable |
| Molecular Weight: | Not applicable |

Section 10 - Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Incompatible materials, high temperatures, exposure to air.

Incompatibilities with Other Materials:

Oxidizing agents, bases, metals, chromic acid, chlorine, nitric acid.

Hazardous Decomposition Products:

Oxides of nitrogen, oxides of sulfur, oxides of carbon, ammonia, oxides of copper, copper fume.

Hazardous Polymerization:

Has not been reported.

Section 11 - Toxicological Information

RTECS:

CAS# 7732-18-5: ZC0110000.
CAS# 7758-99-8: GL8900000.
CAS# 5329-14-6: WO5950000.
CAS# 64-19-7: AF1225000.



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LD50/LC50:

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg.

CAS# 7758-99-8:

Oral, rat: LD50 = 300 mg/kg.

Skin, rat: LD50 = >2 g/kg.

CAS# 5329-14-6:

Oral, mouse: LD50 = 1312 mg/kg

Oral, rat: LD50 = 3160 mg/kg.

CAS# 64-19-7:

Inhalation, mouse: LC50 = 5620 ppm/1H

Oral, rat: LD50 = 3310 mg/kg

Skin, rabbit: LD50 = 1060 uL/kg.

Carcinogenicity:

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 7758-99-8: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 5329-14-6: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 64-19-7: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

Epidemiology:

No information found

Teratogenicity:

Acetic acid treatment of suckling rats (via maternal administration) was associated with abnormalities of behavioral testing.

Reproductive:

See actual entry in RTECS for complete information.

Mutagenicity:

See actual entry in RTECS for complete information.

Neurotoxicity:

No information found

Section 12 - Ecological Information

Ecotoxicity:

Fish: Rainbow trout: LC50 = 0.1-2.5 mg/L; 96 Hr; Unspecified. Fish: Bluegill/Sunfish: LC50 = 0.6 mg/L; 48 Hr; 15 mg/L CaCO₃. Fish: Bluegill/Sunfish: LC50 = 8.0 mg/L; 48 Hr; 68 mg/L CaCO₃. Fish: Bluegill/Sunfish: LC50 = 10.0 mg/L; 48 Hr; 100 mg/L CaCO₃. Fish: Bluegill/Sunfish: LC50 = 45.0 mg/L; 48 Hr; 132 mg/L CaCO₃. In soil, copper sulfate is partly washed down to lower levels, partly bound by soil components, and partly oxidatively transformed. Copper has a strong affinity for hydrous iron and manganese oxides, clays, carbonate minerals, and organic matter. Sorption to these materials results in relative enrichment of the solid phase and reduction in dissolved levels.

Environmental:

Copper is accumulated by plants and animals, but it does not appear to biomagnify from plants to animals. This lack of biomagnification appears common with heavy metals. In air, copper aerosols (in general) have a residence time of 2 to 10 days in an unpolluted atmosphere and 0.1 to > 4 days in polluted, urban areas.

Physical:

No evidence was found to indicate that there is any biotransformation process for copper compounds which would have a significant bearing on the fate of copper in aquatic environments.



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Other:

Has fungicidal properties.

Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated

Hazard Class:

UN Number:

Packing Group:

Section 15 - Regulatory Information

US Federal

TSCA:

CAS# 7732-18-5 is listed on the TSCA Inventory.

CAS# 7758-99-8 is considered to be listed on the TSCA Inventory because the anhydrous form is listed.

CAS# 5329-14-6 is listed on the TSCA Inventory.

CAS# 64-19-7 is listed on the TSCA Inventory.

SARA Reportable Quantities (RQ):

CAS# 7758-98-7 (anhydrous): final RQ = 10 pounds (4.54 kg)

CAS# 64-19-7: final RQ = 5000 pounds (2270 kg)

CERCLA/SARA Section 313:

This material contains Copper (II) Sulfate, Pentahydrate (listed as Copper compounds, nos.), 5%, (CAS# 7758-99-8), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

OSHA - Highly Hazardous:

None of the chemicals in this product are considered highly hazardous by OSHA.

US State

State Right to Know:

Cupric sulfate can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Massachusetts.

Sulfamic acid can be found on the following state Right-to-Know lists: New Jersey.

Acetic acid can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California Regulations:

None.



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European/International Regulations

Canadian DSL/NDSL:

- CAS# 7732-18-5 is listed on Canada's DSL List.
- CAS# 7758-99-8 is listed on Canada's DSL List.
- CAS# 5329-14-6 is listed on Canada's DSL List.
- CAS# 64-19-7 is listed on Canada's DSL List.

Canada Ingredient Disclosure List:

- CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
- CAS# 7758-99-8 is listed on Canada's Ingredient Disclosure List as Copper compounds, nos.
- CAS# 5329-14-6 is listed on Canada's Ingredient Disclosure List.
- CAS# 64-19-7 is listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: November 21, 1998

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