

SAFETY DATA SHEET

Preparation Date: 5/21/2019

Revision date 5/21/2019

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: C1451
Product Name: CUPRIETHYLENEDIAMINE, 0.5 M SOLUTION

Other means of identification

Synonyms: Copper(2+), bis(ethanediamine, N,N')', solution; Copper-ethylenediamine complex solution; Ethane, 1,2-diamino-, copper complex, solution
CAS #: Mixture
RTECS # KH8660000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Respiratory sensitization	Category 1B

Label elements

Danger

Hazard statements

Causes severe skin burns and eye damage
 May cause allergy or asthma symptoms or breathing difficulties if inhaled



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Do not breathe mist or vapors

Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

In case of inadequate ventilation wear respiratory protection

Precautionary Statements - Response

Immediately call a POISON CENTER or physician

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.

IF ON SKIN (or hair): Remove/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.

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Water	7732-18-5	88.75
Cupriethylenediamine	13426-91-0	11.25

4. FIRST AID MEASURES

First aid measures

General Advice:

National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact:

Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact:

Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

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Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician immediately.

Most important symptoms and effects, both acute and delayed

Symptoms

- Severe skin and eye irritation or burns
- Possible eye damage
- Irritating to respiratory system
- May cause allergy or asthma symptoms or breathing difficulties if inhaled
- Causes digestive (gastrointestinal) tract irritation
- Can burn mouth, throat, and stomach
- Coughing and wheezing
- Dyspnea (Shortness of breath and difficulty breathing)
- May cause pulmonary edema
- Dizziness
- Headache
- May cause abdominal pain, nausea, vomiting, diarrhea
- Thirst
- May cause salivation
- May cause metallic taste
- Weakness
- Central nervous system depression

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous combustion products No information available.

Specific hazards No information available.

Special Protective Actions for Firefighters

Specific Methods: No information available

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus

pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Absorb spill with inert material (e.g. vermiculite, dry sand or earth). Use appropriate tools to put the spilled material in a suitable chemical waste disposal container.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not ingest. Do not breathe vapors or spray mist. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep containers tightly closed in a dry, cool and well-ventilated place. Air sensitive. Heat sensitive. Keep refrigerated. Keep at temperatures between 2 and 8 °C. Store under inert gas. Flushed with nitrogen. Store away from incompatible materials. Store in a segregated and approved area.

Incompatible Materials:

Acids
Metals
Combustible materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Water	7732-18-5	None	None	None	None

Cupriethylenediamine	13426-91-0	None	None	None	None
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Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Water	7732-18-5	None	None	None	None
Cupriethylenediamine	13426-91-0	None	None	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
Water	7732-18-5	None	None
Cupriethylenediamine	13426-91-0	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Goggles or Face-shield.
- Skin and body protection:** Chemical resistant apron
Gloves
Long sleeved clothing
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid	Appearance: No information available.	Color: Dark purple.
Odor: No information available.	Taste No information available.	Formula No information available
Molecular/Formula weight (g/mole): No information available	Flammability (solid, gas) no data available	Flashpoint (°C/°F): No information available
Flash Point Tested according to: Not available	Autoignition Temperature (°C/°F): No information available	Lower Explosion Limit (%): No information available
Upper Explosion Limit (%): No information available	Melting point/range(°C/°F): No information available	Decomposition temperature(°C/°F): No information available
Boiling point/range(°C/°F): No information available	Bulk density: No information available	Density (g/cm3): No information available

Specific gravity:
1.05

pH
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Easily soluble in cold water

10. STABILITY AND REACTIVITY

Reactivity

Reactive with acids

Reactive with metals

Dissolves cotton, wood and other cellulosic materials. Air sensitive. Absorbs CO₂ from air. (Cupriethylenediamine)

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Exposure to air. Incompatible materials.

Incompatible Materials: Acids
Metals
Combustible materials

Hazardous decomposition products: No information available.

Other Information

Corrosivity: Corrosive to copper, aluminum, zinc, and tin. (Cupriethylenediamine)

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Eyes. Ingestion. Inhalation. Skin.

Acute Toxicity

Component Information

Water

CAS No | 7732-18-5

LD50/oral/rat = > 90 mL/kg Oral LD50 Rat

LD50/oral/mouse = No information available

LD50/dermal/rabbit = No information available

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LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50information = No information available

Cupriethylenediamine	
CAS No	13426-91-0

LD50/oral/rat = 750 mg/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rabbit = >8 g/kg Dermal LD50 Rabbit
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50information = No information available

Product Information

LD50/oral/rat =
Value - Acute Tox = 3333 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
Value - Acute Tox = > 36000 mg/kg

LD50/dermal/rat
VALUE - Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes severe irritation and burns.

Eye Contact: Causes severe irritation, redness, pain, blurred vision, excess blinking and tear production, conjunctivitis, possible corneal injury, possible permanent eye damage, and eye burns. Low concentrations may cause a visual disturbance commonly known as "Blue Haze" or Halo Vision".

Inhalation Inhalation of mist or vapor irritates the respiratory tract (nose, throat, lungs), and mucous membranes causing coughing, wheezing, and /or shortness of breath or choking. May cause headache, dizziness, weakness nausea, vomiting, and lung edema. May cause asthma-like allergy.

Ingestion May be harmful if swallowed. Causes irritation of the digestive tract (mouth, throat, stomach) with sore throat, thirst, salivation, metallic taste, dizziness, weakness, severe abdominal pain, nausea, vomiting, diarrhea, ulceration and inflammation of the upper alimentary tract, and possible tissue damage/burns and perforation of

the esophagus or stomach. Aspiration may occur during ingestion or vomiting, resulting in lung injury. May also cause central nervous system depression, paralysis, convulsions, and may affect the liver and kidneys.

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Skin: Repeated exposure may cause allergic skin reaction (dermatitis), thickening of the skin and a greenish color to the skin and hair.
 Inhalation: Repeated exposure may cause asthma-like allergy. Future exposure may cause asthma attacks with shortness of breath, wheezing, cough, and/or chest-tightness. Repeated exposure may also cause atrophy of the inner lining of the nose and may cause sores in the nose.
 Ingestion: Repeated or prolonged ingestion copper/copper compounds may affect the liver and kidneys.

Sensitization: May cause sensitization by inhalation.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Cupriethylenediamine	13426-91-0	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.
STOT - repeated exposure No information available.
Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available
Bioaccumulative potential: No information available.
Mobility in soil No information available
Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Water	7732-18-5	None	None	None	None
Cupriethylenediamine	13426-91-0	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1761
Proper Shipping Name: Cupriethylenediamine solution
Hazard Class 8
Subsidiary Class 6.1
Packing group: III
Emergency Response Guide Number 154
Marine Pollutant Marine Pollutant
DOT RQ (lbs): No information available
Special Provisions IB2, T7, TP2
Symbol(s): No information available
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II

TDG (Canada)

UN-No: UN1761
Proper Shipping Name: Cupriethylenediamine solution
Hazard Class 8
Subsidiary Risk: (6.1)
Packing Group: III
Marine Pollutant No Information available
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II

ADR

UN Number UN1761
Proper Shipping Name: Cupriethylenediamine solution
Transport hazard class(es) 8
Packing group III
Subsidiary Risk: 6.1
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II

IMDG

UN-No: UN1761
Proper Shipping Name: Cupriethylenediamine solution
Hazard Class: 8
Subsidiary Risk: 6.1, P
Packing Group: III
Marine Pollutant: Marine Pollutant
EMS: F-A
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II

RID

UN Number: UN1761
Proper Shipping Name: Cupriethylenediamine solution
Transport hazard class(es): 8
Subsidiary Risk: 6.1
Packing group: III
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II

ICAO (air)

UN-No: UN1761
Proper Shipping Name: Cupriethylenediamine solution
Hazard Class: 8
Subsidiary Risk: 6.1
Packing Group: III
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II
Special Provisions: A3

IATA

UN Number: UN1761
Proper Shipping Name: Cupriethylenediamine solution
Transport hazard class(es): 8
Subsidiary Risk: 6.1
Packing group: III
Precautionary Statements - Response: 8P
Special Provisions: No information available
Description: UN1761, Cupriethylenediamine solution, 8 (6.1), II

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
Water	7732-18-5	PresentACTIVE	Present KE-35400	Present	Not present	Present	Present	Present 231-791-2
Cupriethylenediamine	13426-91-0	Not Listed	Not present	Present	Not present	Not listed	Present	Not present

U.S. Regulations

Cupriethylenediamine

New Jersey RTK Hazardous Substance List: 0551

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

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Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Water	7732-18-5	Not Listed	Not Listed	Not Listed	Not Listed
Cupriethylenediamine	13426-91-0	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Water	7732-18-5	None	None	None	None	None
Cupriethylenediamine	13426-91-0	None	None	None	None	None

U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Water	7732-18-5	Not Applicable	Not Applicable
Cupriethylenediamine	13426-91-0	Not Applicable	Not Applicable

Canada**WHMIS 2015 - GHS Classifications**

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

Component
Water
7732-18-5 (88.75)

WHMIS 2015 Hazard Classification
Not a dangerous product according to HPR classification criteria

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
Water	7732-18-5	Present	Not Listed
Cupriethylenediamine	13426-91-0	Present	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Water	7732-18-5	Not listed
Cupriethylenediamine	13426-91-0	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Water	7732-18-5	Not listed
Cupriethylenediamine	13426-91-0	Not listed

EU Classification

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EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Water	7732-18-5	
Cupriethylenediamine	13426-91-0	

EU - CLP (1272/2008)

R-phrase(s)

R34 - Causes burns

S -phrase(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Water	7732-18-5		No information	
Cupriethylenediamine	13426-91-0		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

C - Corrosive



16. OTHER INFORMATION

Preparation Date: 5/21/2019
 Revision date 5/21/2019
 Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet

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