

## SAFETY DATA SHEET

Creation Date 30-Jun-2010

Revision Date 03-Apr-2024

Revision Number 2

### 1. Identification

**Product Name** Copper(II)-ethylenediamine complex, 1M solution in water

**Cat No. :** S61760

**Synonyms** Bis(ethylenediamine)copper(II)hydroxide

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757

##### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

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

|  |              |
|--|--------------|
| Skin Corrosion/Irritation                        | Category 1 B |
| Serious Eye Damage/Eye Irritation                | Category 1   |
| Specific target organ toxicity (single exposure) | Category 3   |
| Target Organs - Respiratory system.              |              |

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Causes severe skin burns and eye damage

May cause respiratory irritation



### Precautionary Statements

#### Prevention

Do not breathe dust/fume/gas/mist/vapors/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Wear protective gloves/protective clothing/eye protection/face protection  
Use only outdoors or in a well-ventilated area

#### Response

Immediately call a POISON CENTER or doctor/physician

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

#### Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
Wash contaminated clothing before reuse

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

#### Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

#### Storage

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

None identified

## 3. Composition/Information on Ingredients

| Component  | CAS No     | Weight % |
|--|------------|----------|
| Water  | 7732-18-5  | 79       |
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | 14552-35-3 | 21       |

## 4. First-aid measures

#### General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

#### Inhalation

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

|  |   |
|--|---|
| <b>Ingestion</b>                           | Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.  |
| <b>Most important symptoms and effects</b> | Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated |
| <b>Notes to Physician</b>                  | Treat symptomatically   |

## 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. |
| <b>Unsuitable Extinguishing Media</b>   | No information available  |
| <b>Flash Point</b>                      | > 110 °C / > 230 °F   |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | No information available  |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | No data available   |
| <b>Lower</b>                            | No data available   |
| <b>Sensitivity to Mechanical Impact</b> | No information available  |
| <b>Sensitivity to Static Discharge</b>  | No information available  |

### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

### Hazardous Combustion Products

Copper oxides. Nitrogen oxides (NO<sub>x</sub>).

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

**Health**  
3

**Flammability**  
0

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

|                                  |  |
|----------------------------------|--|
| <b>Personal Precautions</b>      | Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.    |
| <b>Environmental Precautions</b> | Should not be released into the environment. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system. |

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. |
| <b>Storage.</b> | Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Protect from direct sunlight. Store under an inert atmosphere. Incompatible Materials.  |

Strong oxidizing agents.

## 8. Exposure controls / personal protection

### Exposure Guidelines

| Component   | ACGIH TLV                | OSHA PEL | NIOSH   | Mexico OEL (TWA) |
|---|--------------------------|----------|---|------------------|
| Copper(2+),<br>bis(1,2-ethanediamine-N,N')-<br>, dihydroxide, (SP-4-1)- | TWA: 1 mg/m <sup>3</sup> |          | IDLH: 100 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup> |                  |

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH: NIOSH - National Institute for Occupational Safety and Health

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal Protective Equipment

#### Eye/face Protection

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.

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### Respiratory Protection

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.

#### Recommended Filter type:

Particulates filter conforming to EN 143.

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|  |                          |
|--|--------------------------|
| Physical State                         | Liquid                   |
| Appearance                             | Dark blue                |
| Odor                                   | Odorless                 |
| Odor Threshold                         | No information available |
| pH                                     | 12.0 - 12.5 @ 25°C (1%)  |
| Melting Point/Range                    | No data available        |
| Boiling Point/Range                    | No information available |
| Flash Point                            | > 110 °C / > 230 °F      |
| Evaporation Rate                       | No information available |
| Flammability (solid,gas)               | Not applicable           |
| Flammability or explosive limits       |                          |
| Upper                                  | No data available        |
| Lower                                  | No data available        |
| Vapor Pressure                         | No information available |
| Vapor Density                          | No information available |
| Specific Gravity                       | 1.100                    |
| Solubility                             | Soluble in water         |
| Partition coefficient; n-octanol/water | No data available        |
| Autoignition Temperature               | No information available |
| Decomposition Temperature              | No information available |
| Viscosity                              | No information available |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactive Hazard</b>                  | None known, based on information available                              |
| <b>Stability</b>                        | Air sensitive. Light sensitive.   |
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat. Exposure to air. Exposure to light. |
| <b>Incompatible Materials</b>           | Strong oxidizing agents   |
| <b>Hazardous Decomposition Products</b> | Copper oxides, Nitrogen oxides (NOx)                                    |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.                                |
| <b>Hazardous Reactions</b>              | None under normal processing.   |

## 11. Toxicological information

### Acute Toxicity

#### Product Information

##### Oral LD50

Based on ATE data, the classification criteria are not met. ATE &gt; 2000 mg/kg.

##### Dermal LD50

Based on ATE data, the classification criteria are not met. ATE &gt; 2000 mg/kg.

##### Vapor LC50

Based on ATE data, the classification criteria are not met. ATE &gt; 20 mg/l.

#### Component Information

| Component  | LD50 Oral       | LD50 Dermal      | LC50 Inhalation |
|--|-----------------|------------------|-----------------|
| Water  | -               | -                | -               |
| Copper(2+),<br>bis(1,2-ethanediamine-N,N')-,<br>dihydroxide, (SP-4-1)- | 750 mg/kg (rat) | 8000 mg/kg (rat) | Not listed      |

#### Toxicologically Synergistic Products

No information available

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

|                        |  |
|------------------------|--|
| <b>Irritation</b>      | Causes burns by all exposure routes  |
| <b>Sensitization</b>   | No information available   |
| <b>Carcinogenicity</b> | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component  | CAS No     | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|--|------------|------------|------------|------------|------------|------------|
| Water  | 7732-18-5  | Not listed | Not listed | Not listed | Not listed | Not listed |
| Copper(2+),<br>bis(1,2-ethanediamine-N,N')-,<br>dihydroxide, (SP-4-1)- | 14552-35-3 | Not listed | Not listed | Not listed | Not listed | Not listed |

|                          |                          |
|--------------------------|--------------------------|
| <b>Mutagenic Effects</b> | No information available |
|--------------------------|--------------------------|

|                             |                           |
|-----------------------------|---------------------------|
| <b>Reproductive Effects</b> | No information available. |
|-----------------------------|---------------------------|

|                              |                           |
|------------------------------|---------------------------|
| <b>Developmental Effects</b> | No information available. |
|------------------------------|---------------------------|

|                       |                           |
|-----------------------|---------------------------|
| <b>Teratogenicity</b> | No information available. |
|-----------------------|---------------------------|

|                               |                    |
|-------------------------------|--------------------|
| <b>STOT - single exposure</b> | Respiratory system |
|-------------------------------|--------------------|

|                                 |            |
|---------------------------------|------------|
| <b>STOT - repeated exposure</b> | None known |
|---------------------------------|------------|

|                          |                          |
|--------------------------|--------------------------|
| <b>Aspiration hazard</b> | No information available |
|--------------------------|--------------------------|

|   |  |
|---|--|
| <b>Symptoms / effects, both acute and</b> | Ingestion causes severe swelling, severe damage to the delicate tissue and danger of |
|---|--|

**delayed** perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

**Persistence and Degradability** May persist based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

**UN-No** UN1761  
**Proper Shipping Name** CUPRIETHYLENEDIAMINE SOLUTION  
**Hazard Class** 8  
**Subsidiary Hazard Class** 6.1  
**Packing Group** II

### TDG

**UN-No** UN1761  
**Proper Shipping Name** CUPRIETHYLENEDIAMINE SOLUTION  
**Hazard Class** 8  
**Subsidiary Hazard Class** 6.1  
**Packing Group** II

### IATA

**UN-No** UN1761  
**Proper Shipping Name** CUPRIETHYLENEDIAMINE SOLUTION  
**Hazard Class** 8  
**Subsidiary Hazard Class** 6.1  
**Packing Group** II

### IMDG/IMO

**UN-No** UN1761  
**Proper Shipping Name** CUPRIETHYLENEDIAMINE SOLUTION  
**Hazard Class** 8  
**Subsidiary Hazard Class** 6.1  
**Packing Group** II

## 15. Regulatory information

### United States of America Inventory

| Component                                    | CAS No     | TSCA | TSCA Inventory notification -<br>Active-Inactive | TSCA - EPA Regulatory<br>Flags |
|--|------------|------|--|--------------------------------|
| Water  | 7732-18-5  | X    | ACTIVE   | -                              |
| Copper(2+),<br>bis(1,2-ethanediamine-N,N')-, | 14552-35-3 | X    | ACTIVE   | -                              |

**Copper(II)-ethylenediamine complex, 1M solution in water**

Revision Date 03-Apr-2024

|                        |  |  |  |  |
|------------------------|--|--|--|--|
| dihydroxide, (SP-4-1)- |  |  |  |  |
|------------------------|--|--|--|--|

**Legend:****TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)**

Not applicable

**TSCA 12(b)** - Notices of Export

Not applicable

**International Inventories**

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component  | CAS No     | DSL | NDL | EINECS    | PICCS | ENCS | ISHL | AICS | IECSC | KECL     |
|--|------------|-----|-----|-----------|-------|------|------|------|-------|----------|
| Water  | 7732-18-5  | X   | -   | 231-791-2 | X     | X    |      | X    | X     | KE-35400 |
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | 14552-35-3 | -   | X   | 238-597-7 | -     | -    |      | -    | -     | -        |

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

| Component  | CAS No     | Weight % | SARA 313 - Threshold Values % | SARA 313 - Reporting thresholds |
|--|------------|----------|-------------------------------|---------------------------------|
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | 14552-35-3 | 21       | 1.0 %                         | -                               |

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

| Component  | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|--|----------------------------|-----------------------------|------------------------|---------------------------|
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | -                          | -                           | X                      | -                         |

**Clean Air Act**

Not applicable

**OSHA** - Occupational Safety and Health Administration

Not applicable

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

## California Proposition 65

This product does not contain any Proposition 65 chemicals.

## U.S. State Right-to-Know Regulations

| Component  | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|--|---------------|------------|--------------|----------|--------------|
| Water  | -             | -          | X            | -        | -            |
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | -             | X          | X            | -        | -            |

## U.S. Department of Transportation

Reportable Quantity (RQ): N  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

## U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

## Other International Regulations

## Mexico - Grade

No information available

## Authorisation/Restrictions according to EU REACH

Not applicable

| Component  | CAS No     | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|--|------------|---|---|---|
| Water  | 7732-18-5  | -   | -   | -   |
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | 14552-35-3 | -   | -   | -   |

## Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component  | CAS No     | OECD HPV       | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|--|------------|----------------|------------------------------|---------------------------|--|
| Water  | 7732-18-5  | Listed         | Not applicable               | Not applicable            | Not applicable                             |
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | 14552-35-3 | Not applicable | Not applicable               | Not applicable            | Not applicable                             |

## Contains component(s) that meet a 'definition' of per &amp; poly fluoroalkyl substance (PFAS)?

Not applicable

## Other International Regulations

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-----------|--------|--|---|----------------------------|------------------------------------|
|           |        |  |   |                            |                                    |



|  |            | Notification   | Requirements   |                |                |
|--|------------|----------------|----------------|----------------|----------------|
| Water  | 7732-18-5  | Not applicable | Not applicable | Not applicable | Not applicable |
| Copper(2+), bis(1,2-ethanediamine-N,N')-, dihydroxide, (SP-4-1)- | 14552-35-3 | Not applicable | Not applicable | Not applicable | Annex I - Y22  |

## 16. Other information

**Prepared By** Health, Safety and Environmental Department  
Email: chem.techinfo@thermofisher.com  
www.thermofisher.com

**Creation Date** 30-Jun-2010  
**Revision Date** 03-Apr-2024  
**Print Date** 03-Apr-2024  
**Revision Summary** New emergency telephone response service provider.

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**