SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Copper sulfate solution c(CuSO4)=0.1 mol/l Titripur®

Product Number: 1.02784
Catalogue No.: 102784
Brand: Millipore

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Reagent for analysis

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO  63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram: none
Signal word: none
Hazard statement(s)
H401: Toxic to aquatic life.
H412: Harmful to aquatic life with long lasting effects.
Precautionary statement(s)
P273 Avoid release to the environment.
P501 Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.2 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper(II) sulphate</td>
<td>Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Aquatic Acute 1; Aquatic Chronic 1; H302, H315, H319, H400, H410 M-Factor - Aquatic Acute: 10 M-Factor - Aquatic Chronic: 1</td>
<td>&gt;= 1 - &lt; 5 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7758-98-7</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-847-6</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>029-004-00-0</td>
<td></td>
</tr>
<tr>
<td>Registration number</td>
<td>01-2119520566-40-XXXX</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available
SECTION 5: Firefighting measures

5.1 Extinguishing media

**Suitable extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® H⁺, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

**Storage conditions**
Tightly closed.

Recommended storage temperature see product label.

Storage class (TRGS 510): 12: Non Combustible Liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Ingredients with workplace control parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Copper(II) sulphate</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

**Appropriate engineering controls**
Change contaminated clothing. Wash hands after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested: KCL 741 Dermatril® L

**Respiratory protection**
Not required; except in case of aerosol formation.

**Control of environmental exposure**
Do not let product enter drains.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance Form: liquid
    Color: blue

b) Odor odorless

c) Odor Threshold Not applicable

d) pH ca.4.2 at 20 °C (68 °F)

e) Melting point/freezing point No data available

f) Initial boiling point and boiling range No data available

g) Flash point ()Not applicable

h) Evaporation rate No data available

i) Flammability (solid, gas) No data available

j) Upper/lower flammability or explosive limits No data available

k) Vapor pressure No data available

l) Vapor density No data available

m) Relative density No data available

n) Water solubility soluble

o) Partition coefficient: n-octanol/water No data available

p) Autoignition temperature Not applicable

q) Decomposition temperature No data available

r) Viscosity No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).
10.3 Possibility of hazardous reactions
    Violent reactions possible with:
    hydroxylamine
    The generally known reaction partners of water.
    Violent reactions possible with:
    The generally known reaction partners of water.

10.4 Conditions to avoid
    no information available

10.5 Incompatible materials
    No data available

10.6 Hazardous decomposition products
    In the event of fire: see section 5

SECTION 11: Toxicological information
11.1 Information on toxicological effects
    Mixture
        Acute toxicity
        Acute toxicity estimate Oral - > 5,000 mg/kg
        (Calculation method)
        Inhalation: No data available
        Acute toxicity estimate Dermal - > 5,000 mg/kg
        (Calculation method)
        Skin corrosion/irritation
        No data available
        Serious eye damage/eye irritation
        No data available
        Respiratory or skin sensitization
        No data available
        Germ cell mutagenicity
        No data available
        Carcinogenicity
        IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
        NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
        OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.
        Reproductive toxicity
        No data available
        Specific target organ toxicity - single exposure
        No data available
        Specific target organ toxicity - repeated exposure
        No data available
Aspiration hazard
No data available

11.2 Additional Information
Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Components
Copper(II) sulphate

Acute toxicity
LD50 Oral - Rat - male and female - 481 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Causes skin irritation. (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)
The value is given in analogy to the following substances: Copper sulphate pentahydrate
Risk of corneal clouding. conjunctivitis

Respiratory or skin sensitization
Freund's complete adjuvant test - Guinea pig
Result: negative
(OECD Test Guideline 406)
The value is given in analogy to the following substances: Copper sulphate pentahydrate

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 486
Species: Rat - male - Liver cells
Result: negative
Method: Mutagenicity (micronucleus test)
Species: Mouse - male and female - Red blood cells (erythrocytes)
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available
SECTION 12: Ecological information

12.1 Toxicity
- **Mixture**
  No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
- **Biological effects:**
  Fungicide
  Discharge into the environment must be avoided.

**Components**
- **Copper(II) sulphate**
  Toxicity to fish: flow-through test LC50 - Pimephales promelas (fathead minnow) - 0.193 mg/l - 96 h (US-EPA)

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- **Product**
  Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

**DOT (US)**
- UN number: 3082
- Class: 9
- Packing group: III
- Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
- Reportable Quantity (RQ): 641 lbs
- Poison Inhalation Hazard: No

**IMDG**
- Not dangerous goods
IATA
Not dangerous goods

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper(II) sulphate</td>
<td>7758-98-7</td>
<td>1993-02-16</td>
</tr>
</tbody>
</table>

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact misbranding@sial.com.

Version: 8.2 Revision Date: 06/04/2021 Print Date: 11/08/2022