

# SAFETY DATA SHEET

Version 6.10  
Revision Date 03/04/2024  
Print Date 07/13/2024

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

### 1.1 Product identifiers

Product name : Copper(II) chloride dihydrate

Product Number : C3279  
Brand : Sigma  
CAS-No. : 10125-13-0

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 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)

Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Dermal (Category 4), H312  
Skin irritation (Category 2), H315  
Serious eye damage (Category 1), H318

Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 2), H411

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

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard Statements

H302 + H312

Harmful if swallowed or in contact with skin.

H315

Causes skin irritation.

H318

Causes serious eye damage.

H400

Very toxic to aquatic life.

H411

Toxic to aquatic life with long lasting effects.

Precautionary Statements

P264

Wash skin thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P273

Avoid release to the environment.

P280

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

P301 + P312 + P330

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P302 + P352 + P312

IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell.

P305 + P351 + P338 +

P310

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/ doctor.

P332 + P313

If skin irritation occurs: Get medical advice/ attention.

P362

Take off contaminated clothing and wash before reuse.

P391

Collect spillage.

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

#### 3.1 Substances

Synonyms : Cupric chloride dihydrate

Formula :  $\text{Cl}_2\text{Cu} \cdot 2\text{H}_2\text{O}$

Molecular weight : 170.48 g/mol

CAS-No. : 10125-13-0

EC-No. : 231-210-2

Component	Classification	Concentration
<b>Copper(II) chloride dihydrate</b>	Acute Tox. 4; Skin Irrit. 2;	<= 100 %

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	Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 2; H302, H312, H315, H318, H400, H411	
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For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### 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. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Unsuitable extinguishing media

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

### 5.2 Special hazards arising from the substance or mixture

Hydrogen chloride gas

Copper oxides

Not combustible.

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### **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.

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### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

#### **6.4 Reference to other sections**

For disposal see section 13.

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### **SECTION 7: Handling and storage**

#### **7.1 Precautions for safe handling**

##### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

##### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

#### **7.2 Conditions for safe storage, including any incompatibilities**

##### **Storage conditions**

Tightly closed. Dry.

Keep in a dry place.

##### **Storage class**

Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials

#### **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

#### Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Copper(II) chloride dihydrate	10125-13-0	TWA	1 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		PEL	1 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### 8.2 Exposure controls

#### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face 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). Tightly fitting safety goggles

##### 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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://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

##### Body Protection

protective clothing

##### Respiratory protection

Recommended Filter type: Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented. required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### **Control of environmental exposure**

Do not let product enter drains.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

a) Appearance	Form: powder Color: dark blue
b) Odor	No data available
c) Odor Threshold	No data available
d) pH	3.0 - 3.8
e) Melting point/freezing point	100 °C (212 °F)
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) Density	ca.2.53 g/cm <sup>3</sup> at 20 °C (68 °F)
Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p) Autoignition temperature	No data available
q) Decomposition temperature	No data available

- r) Viscosity No data available
- s) Explosive properties No data available
- t) Oxidizing properties none

## 9.2 Other safety information

No data available

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## 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:

Alkali metals

Strong oxidizing agents

Risk of explosion with:

Acetylene

Possible formation of:

acetylidene

### 10.4 Conditions to avoid

Heat. Exposure to moisture.

no information available

### 10.5 Incompatible materials

various metals

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 584 mg/kg

Remarks: (anhydrous substance)

(RTECS)

The value is given in analogy to the following substances: copper(II) chloride

Inhalation: No data available

LD50 Dermal - Rat - female - 1,224 mg/kg

(OECD Test Guideline 402)

Remarks: (anhydrous substance)

The value is given in analogy to the following substances: copper(II) chloride  
The value is given in analogy to the following substances: Copper (I)-chloride

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### **Skin corrosion/irritation**

Skin - Rabbit

Result: Irritating to skin.

Remarks: (ECHA)

anhydrous substance

The value is given in analogy to the following substances: copper(II) chloride  
The value is given in analogy to the following substances: Copper (I)-chloride

### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye damage.

Remarks: (ECHA)

(anhydrous substance)

The value is given in analogy to the following substances: Copper (I)-chloride

### **Respiratory or skin sensitization**

In animal experiments: - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (anhydrous substance)

The value is given in analogy to the following substances: Copper (I)-chloride

### **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**

RTECS: GL7030000

Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue., Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by

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hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis., Symptoms observed shortly before death were: Shock., renal failure  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After absorption:

Headache  
Diarrhea  
drop in blood pressure  
Fever

After uptake of large quantities:

CNS disorders  
haemolysis

Damage to:

Liver  
Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

No data available

### **12.2 Persistence and degradability**

The methods for determining the biological degradability are not applicable to inorganic substances.

### **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 Endocrine disrupting properties**

No data available

## 12.7 Other adverse effects

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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## 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.

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## SECTION 14: Transport information

#### DOT (US)

UN number: 2802 Class: 8 Packing group: III  
Proper shipping name: Copper chloride  
Reportable Quantity (RQ): 10 lbs  
Marine pollutant: yes Poison Inhalation Hazard: No

#### IMDG

UN number: 2802 Class: 8 Packing group: III EMS-No: F-A, S-B  
Proper shipping name: COPPER CHLORIDE  
Marine pollutant : yes  
Marine pollutant : yes

#### IATA

UN number: 2802 Class: 8 Packing group: III  
Proper shipping name: Copper chloride

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## 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:

	CAS-No.	Revision Date
Copper(II) chloride dihydrate	10125-13-0	1993-02-16

#### SARA 311/312 Hazards

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Acute Health Hazard

**Massachusetts Right To Know Components**

Copper(II) chloride dihydrate	CAS-No. 10125-13-0	Revision Date 1993-02-16
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**Pennsylvania Right To Know Components**

Copper(II) chloride dihydrate	CAS-No. 10125-13-0	Revision Date 1993-02-16
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**SECTION 16: Other information**

**Further information**

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.10

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