

## Chemical Safety Data Sheet MSDS / SDS

## Copper(II) chloride

Revision Date:2024-03-16 Revision Number:1

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

## Product identifier

Product name : Copper(II) chloride  
CBnumber : CB1144723  
CAS : 7447-39-4  
EINECS Number : 231-210-2  
Synonyms : CuCl<sub>2</sub>, copper Chloride

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P405 Store locked up.

## Hazard statements

H290 May be corrosive to metals

H301 Toxic if swallowed

H314 Causes severe skin burns and eye damage

H315 Causes skin irritation  
H318 Causes serious eye damage  
H400 Very toxic to aquatic life  
H410 Very toxic to aquatic life with long lasting effects

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## SECTION 3: Composition/information on ingredients

### Substance

Product name : Copper(II) chloride  
Synonyms : CuCl<sub>2</sub>, copper Chloride  
CAS : 7447-39-4  
EC number : 231-210-2  
MF : Cl<sub>2</sub>Cu  
MW : 134.45

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## SECTION 4: First aid measures

### 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.

### 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

### Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 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.

### Special hazards arising from the substance or mixture

Hydrogen chloride gas Copper oxides

Not combustible.

Ambient fire may liberate hazardous vapours.

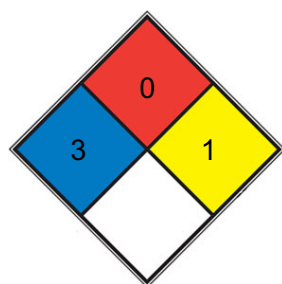
### Advice for firefighters

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

### 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.

### NFPA 704



**HEALTH 3** Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

**FIRE 0** Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

**REACT 1** Normally stable, but can become unstable at elevated temperatures and pressures (e.g. [propene](#))

SPEC.

HAZ.

## SECTION 6: Accidental release measures

### 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.

### Environmental precautions

Do not let product enter drains.

### 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.

### **Reference to other sections**

For disposal see section 13.

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

### **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.

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

#### **Storage conditions**

Tightly closed. Dry.

Hygroscopic. Store under inert gas.

#### **Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

### **Exposure controls**

#### **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 EN374 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 EN374 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

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.

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.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	brown powder
Odour	odorless
Odour Threshold	Not applicable
pH	3.5 (50g/l, H <sub>2</sub> O, 20°C)
Melting point/freezing point	Melting point/range: 620 °C - lit.
Initial boiling point and boiling range	993 °C at 1013,250 hPa
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	3,386 g/mL at 25 °C - lit. 3,4 at 25 °C
Water solubility	620 g/l at 20 °C - soluble
Partition coefficient: n-octanol/water	Not applicable for inorganic substances
Autoignition temperature	< 400 °C - Relative self-ignition temperature for solidsdoes not ignite
Decomposition temperature	No data available

Viscosity Viscosity, kinematic: No data available Viscosity, dynamic: No data available

Explosive properties No data available

Oxidizing properties No data available

### Other safety information

No data available

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## SECTION 10: Stability and reactivity

### Reactivity

No data available

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Violent reactions possible with:

Alkali metals

Strong oxidizing agents Risk of explosion with:

Acetylene

Possible formation of:

acetylidene

### Conditions to avoid

no information available

### Incompatible materials

various metals

### Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 584 mg/kg

Remarks: (RTECS)

Symptoms: After swallowing: irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Inhalation

LD50 Dermal - Rat - female - 1.224 mg/kg (OECD Test Guideline 402)

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

**Skin corrosion/irritation**

Skin - Rabbit Result: Irritations Remarks: (ECHA)

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)

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

**Respiratory or skin sensitization**

(OECD Test Guideline 406)

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

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: negative

Remarks: The value is given in analogy to the following substances: Copper sulphate pentahydrate

Test Type: Micronucleus test Species: Mouse

Cell type: Bone marrow Application Route: Oral

Method: Regulation (EC) No. 440/2008, Annex, B.12 Result: negative

Remarks: The value is given in analogy to the following substances: Copper sulphate pentahydrate

Test Type: unscheduled DNA synthesis assay Species: Rat

Cell type: Liver cells Application Route: Oral

Method: OECD Test Guideline 486 Result: negative

Remarks: The value is given in analogy to the following substances: Copper sulphate pentahydrate

**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

**Aspiration hazard**

No data available

**Toxicity**

LD50 orally in Rabbit: 584 mg/kg

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## SECTION 12: Ecological information

**Toxicity****Toxicity to fish**

flow-through test LC50 - *Oncorhynchus mykiss* (rainbow trout) - 0,0028 mg/l - 96 h

Remarks: (ECOTOX Database)

**Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - Ceriodaphnia dubia (water flea) - 0,00557 mg/l - 48 h

Remarks: (ECOTOX Database)

**Persistence and degradability**

The methods for determining biodegradability are not applicable to inorganic substances.

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**Other adverse effects**

Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

**Waste treatment methods****Incompatibilities**

Contact with strong acids forms monovalent copper salts and toxic hydrogen chloride gas. Keep away from moisture and alkali metals. Attacks metals in the presence of moisture. Reacts with moist air to form cupric chloride dihydrate. May attack some metals, paints, and coatings.

**Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

**UN number**

ADR/RID: 2802 IMDG: 2802 IATA: 2802

**UN proper shipping name**

ADR/RID: COPPER CHLORIDE IMDG: COPPER CHLORIDE IATA: Copper chloride

**Transport hazard class(es)**

ADR/RID: 8 IMDG: 8 IATA: 8



## Packaging group

ADR/RID: III IMDG: III IATA: III

## Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

## Special precautions for user

No data available

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## SECTION 15: Regulatory information

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

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

#### Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

EC Inventory:Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

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## SECTION 16: Other information

### Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

STEL: Short term exposure limit

TWA: Time Weighted Average

### References

**[1]** CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

**[2]** ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

**[3]** ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

**Disclaimer:**

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