

# • SAFETY DATA SHEET

Version 6.8  
Revision Date 11/06/2025  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Copper(II) nitrate trihydrate  
Product Number : 61197  
Brand : SIGALD  
CAS-No. : 10031-43-3

### 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 number

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

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## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Oxidizing solids : Category 2

Skin corrosion : Category 1B  
Serious eye damage : Category 1  
Short-term (acute) aquatic hazard : Category 1  
Long-term (chronic) aquatic hazard : Category 2

### Other hazards

None known.

### GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H272 May intensify fire; oxidizer.  
H314 Causes severe skin burns and eye damage.  
H400 Very toxic to aquatic life.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P210 Keep away from heat.  
P220 Keep/ Store away from clothing/ combustible materials.  
P221 Take any precaution to avoid mixing with combustibles.  
P260 Do not breathe dust.  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

#### Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
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.

P363 Wash contaminated clothing before reuse.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
P391 Collect spillage.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

CAS-No. : 10031-43-3

**Components**

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Copper(II) nitrate trihydrate	10031-43-3*	>= 90 - <= 100	-

\* Indicates that the identifier is a CAS No.

Actual concentration is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

- General advice : First aiders need to protect themselves. Show this safety data sheet to the doctor in attendance.
- If inhaled : After inhalation: fresh air. Call in physician.
- In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
- 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: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.
- Most important symptoms and effects, : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in

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both acute and delayed            section 11

Protection of first-aiders        : For personal protection see section 8.

Notes to physician                : No data available

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## SECTION 5. FIREFIGHTING MEASURES

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.

Specific hazards during fire fighting    : Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

Hazardous combustion products        : Nitrogen oxides (NO<sub>x</sub>)

Copper oxides

Specific extinguishing methods        : No data available

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

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

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions,                : Advice for non-emergency personnel:

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- protective equipment and emergency procedures : Avoid inhalation of dusts.  
Avoid substance contact.  
Ensure adequate ventilation.  
Evacuate the danger area, observe emergency procedures, consult an expert.  
Advice for emergency responders:  
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.

## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

- Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition.
- Further information on storage conditions : Tightly closed.  
Do not store near combustible materials.
- Storage class : 5.1B, Oxidizing hazardous materials
- Recommended storage temperature : Recommended storage temperature see product label.
- Further information on storage stability : hygroscopic  
Heat sensitive.  
Moisture sensitive.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Copper(II) nitrate trihydrate	10031-43-3	TWA	1 mg/m <sup>3</sup> (Copper)	NIOSH REL

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when dusts are generated.

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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.

Hand protection

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Full contact  
Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.11 mm  
Protective index : Splash contact  
Manufacturer : KCL 741 Dermatril® L

Remarks : 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)).

Eye 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 and body protection : protective clothing

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

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

The logo for MilliporeSigma, featuring the word "Millipore" in a red, sans-serif font above the word "Sigma" in a bold, red, sans-serif font.

Appearance	: crystalline
Color	: dark blue
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Melting point	: No data available
Boiling point/boiling range	: No data available
Flash point	: Not applicable
Evaporation rate	: No data available
Burning rate	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapor pressure	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Density	: 2.05 g/cm <sup>3</sup> (68 °F / 20 °C)
Water solubility	: No data available
Partition coefficient: n- octanol/water	: Not applicable for inorganic substances
Autoignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: No data available

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Oxidizing properties	: The substance or mixture is classified as oxidizing with the category 2.
Molecular weight	: 241.60 g/mol
Particle characteristics	
Particle size	: 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	: Exothermic reaction with: Acetic anhydride Risk of explosion with: Ammonia amides cyanide complexes Organic Substances Metals oxidisable substances
Conditions to avoid	: Heat Avoid moisture.  no information available
Incompatible materials	: No data available
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

Oral: No data available  
 Inhalation: No data available  
 Dermal: No data available  
 No data available

#### Skin corrosion/irritation

Skin - In vitro study  
 Result: Corrosive  
 (OECD Test Guideline 431)  
 Remarks: The value is given in analogy to the following substances: Copper(II) nitrate

**Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

The value is given in analogy to the following substances: Copper(II) nitrate

**Respiratory or skin sensitization**

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: The value is given in analogy to the following substances: Copper(II) nitrate

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component 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 component 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: GL7875000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Copper(II) nitrate trihydrate:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.19

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mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Remarks: (ECHA)  
The value is given in analogy to the following substances:

### **Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

### **Persistence and degradability**

#### **Components:**

#### **Copper(II) nitrate trihydrate:**

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

### **Bioaccumulative potential**

#### **Components:**

#### **Copper(II) nitrate trihydrate:**

Bioaccumulation : Remarks: No data available

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

### **Mobility in soil**

#### **Components:**

#### **Copper(II) nitrate trihydrate:**

Stability in soil : Remarks: No data available

### **Other adverse effects**

#### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : 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

### International Regulations

#### IATA-DGR

UN/ID No. : UN 3085  
Proper shipping name : Oxidizing solid, corrosive, n.o.s.  
(Copper(II) nitrate trihydrate)  
Class : 5.1  
Subsidiary risk : 8  
Packing group : II  
Labels : Division 5.1 - Oxidizing substances, Class 8 -  
Corrosive substances  
Packing instruction (cargo : 562  
aircraft)  
Packing instruction : 558  
(passenger aircraft)

#### IMDG-Code

UN number : UN 3085  
Proper shipping name : OXIDIZING SOLID, CORROSIVE, N.O.S.  
(Copper(II) nitrate trihydrate)  
Class : 5.1  
Subsidiary risk : 8  
Packing group : II  
Labels : 5.1 (8)  
EmS Code : F-A, S-Q  
Marine pollutant : yes

### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### National Regulations

#### 49 CFR Road

UN/ID/NA number : UN 3085  
Proper shipping name : Oxidizing solid, corrosive, n.o.s.  
(Copper(II) nitrate trihydrate)  
Class : 5.1  
Subsidiary risk : 8  
Packing group : II  
Labels : Division 5.1 - Oxidizing substances, Class 8 -  
Corrosive substances

ERG Code : 140  
Marine pollutant : no

Poison Inhalation Hazard : No

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Copper(II) nitrate trihydrate	10031-43-3	100	100

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

**SARA 311/312 Hazards** : Reactivity Hazard  
Acute Health Hazard  
Chronic Health Hazard

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

Copper(II) nitrate trihydrate	10031-43-3	>= 90 - <= 100 %
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### Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

### Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Copper(II) nitrate trihydrate	10031-43-3	>= 90 - <= 100 %
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Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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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