

## SAFETY DATA SHEET

Version 4.14  
 Revision Date 12/02/2015  
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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	: Copper		
Product Number	: 12806		
Brand	: Aldrich		
Product Use	: For laboratory research purposes.		
Supplier	: Sigma-Aldrich Canada Co. 2149 Winston Park Drive OAKVILLE ON L6H 6J8 CANADA	Manufacturer	: Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA
Telephone	: +1 9058299500		
Fax	: +1 9058299292		
Emergency Phone # (For both supplier and manufacturer)	: +1-703-527-3887 (CHEMTREC)		
Preparation Information	: Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956		

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### WHMIS Classification

Not controlled.

##### GHS Classification

Acute aquatic toxicity (Category 1)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)  
 H400 Very toxic to aquatic life.

Precautionary statement(s)  
 P273 Avoid release to the environment.

##### HMIS Classification

Health hazard: 0  
 Flammability: 0  
 Physical hazards: 0

##### Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : Cu

Molecular weight : 63.55 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>Copper</b>			
7440-50-8	231-159-6	-	<=100%

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#### 4. FIRST AID MEASURES

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

##### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

##### In case of eye contact

Flush eyes with water as a precaution.

##### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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#### 5. FIREFIGHTING MEASURES

##### Conditions of flammability

Not flammable or combustible.

##### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

##### Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

##### Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Copper oxides

##### Explosion data - sensitivity to mechanical impact

No data available

##### Explosion data - sensitivity to static discharge

No data available

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#### 6. ACCIDENTAL RELEASE MEASURES

##### Personal precautions

Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

##### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

##### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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#### 7. HANDLING AND STORAGE

##### Precautions for safe handling

Provide appropriate exhaust ventilation at places where dust is formed.

##### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Copper	7440-50-8	TWA	1.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks				
		TWA	1.000000 mg/m3	Canada. British Columbia OEL
		TWAEV	1.000000 mg/m3	Canada. Ontario OELs
		TWAEV	1.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	0.200000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	0.200000 mg/m3	Canada. British Columbia OEL
		TWAEV	0.200000 mg/m3	Canada. Ontario OELs
		TWAEV	0.200000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
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		TWA	1.000000 mg/m3	Canada. British Columbia OEL
		TWA	0.200000 mg/m3	Canada. British Columbia OEL
		TWA	1 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)

		TWAEV	1 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWAEV	0.2 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	1 mg/m3	Canada. British Columbia OEL
		TWA	0.2 mg/m3	Canada. British Columbia OEL
		TWA	1.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	0.2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)

## Personal protective equipment

### Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374  
 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Eye protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Specific engineering controls**

Use mechanical exhaust or laboratory fumehood to avoid exposure.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form	powder
Colour	copper, coloured

**Safety data**

pH	No data available
Melting point/freezing point	Melting point/range: 1,083 °C (1,981 °F)
Boiling point	2,597 °C (4,707 °F)
Flash point	Not applicable
Flammability (solid, gas)	not auto-flammable
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	No data available
Density	8.96 g/cm <sup>3</sup> at 20 °C (68 °F)
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Relative vapour density	No data available
Odour	odourless
Odour Threshold	No data available
Evaporation rate	No data available

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**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

No data available

**Conditions to avoid**

No data available

**Materials to avoid**

Strong acids, Strong oxidizing agents, Acid chlorides, Halogens

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Copper oxides  
Other decomposition products - No data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

No data available

**Inhalation LC50**

No data available

**Dermal LD50**

No data available

**Other information on acute toxicity**

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitisation**

No data available

**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.

**Reproductive toxicity**

No data available

**Teratogenicity**

No data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

No data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

No data available

**Aspiration hazard**

No data available

**Potential health effects****Inhalation**

May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion**

May be harmful if swallowed.

**Skin**

May be harmful if absorbed through skin. May cause skin irritation.

**Eyes**

May cause eye irritation.

**Signs and Symptoms of Exposure**

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 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., Damage to the lungs., Vomiting, Diarrhoea, Abdominal pain, Blood disorders

**Synergistic effects**

No data available

**Additional Information**

RTECS: GL5325000

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

Toxicity to fish	mortality LOEC - Oncorhynchus mykiss (rainbow trout) - 0.022 mg/l - 96 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.15 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	mortality NOEC - Daphnia (water flea) - 0.004 mg/l - 24 h
	EC50 - Daphnia magna (Water flea) - 0.04 - 0.05 mg/l - 48 h

**Persistence and degradability**

Not applicable

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**PBT and vPvB assessment**

No data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

No data available

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**13. DISPOSAL CONSIDERATIONS**

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**

UN number: 3077 Class: 9 Packing group: III  
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Copper)  
Reportable Quantity (RQ): 5000 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper)  
Marine pollutant: Marine pollutant

**IATA**

UN number: 3077 Class: 9

Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Copper)

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## 15. REGULATORY INFORMATION

### WHMIS Classification

Not controlled.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

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## 16. OTHER INFORMATION

### Further information

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