

ALFAA42482

## Copper Beryllium rod, alloy C17200

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**产品说明:** 铜铍合金棒, 合金 C17200, 6.35mm (0.25in) 直径  
**Product Description:** Copper Beryllium rod, alloy C17200

**Cat No. :** 42482  
**Molecular Formula** Cu:Be; 98.1:1.9 wt%

**Supplier** Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
Shore Road, Heysham  
Lancashire, LA3 2XY,  
United Kingdom  
Office Tel: +44 (0) 1524 850506  
Office Fax: +44 (0) 1524 850608

**Emergency Telephone Number** For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

**E-mail address** begel.sdsdesk@thermofisher.com

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

### SECTION 2. HAZARD IDENTIFICATION

**Physical State**  
Solid

**Appearance**  
Bronze

**Odor**  
Odorless

#### Emergency Overview

Causes mild skin irritation. May cause an allergic skin reaction. May cause respiratory irritation. May cause damage to organs through prolonged or repeated exposure. Harmful if inhaled. May cause cancer by inhalation.

#### Classification of the substance or mixture

|  |             |
|--|-------------|
| Acute Inhalation Toxicity - Dusts and Mists          | Category 4  |
| Skin Corrosion/Irritation                            | Category 3  |
| Skin Sensitization                                   | Category 1  |
| Carcinogenicity                                      | Category 1A |
| Specific target organ toxicity - (single exposure)   | Category 3  |
| Specific target organ toxicity - (repeated exposure) | Category 2  |

#### Label Elements



# SAFETY DATA SHEET

## Copper Beryllium rod, alloy C17200

**Signal Word****Danger****Hazard Statements**

H316 - Causes mild skin irritation  
H317 - May cause an allergic skin reaction  
H335 - May cause respiratory irritation  
H373 - May cause damage to organs through prolonged or repeated exposure  
H332 - Harmful if inhaled  
H350i - May cause cancer by inhalation

**Precautionary Statements****Prevention**

P201 - Obtain special instructions before use  
P202 - Do not handle until all safety precautions have been read and understood  
P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P271 - Use only outdoors or in a well-ventilated area  
P272 - Contaminated work clothing should not be allowed out of the workplace  
P280 - Wear protective gloves

**Response**

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water  
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P308 + P313 - IF exposed or concerned: Get medical advice/attention  
P362 + P364 - Take off contaminated clothing and wash it before reuse

**Storage**

P403 - Store in a well-ventilated place

**Disposal**

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

**Physical and Chemical Hazards**

None identified.

**Health Hazards**

Causes mild skin irritation. May cause an allergic skin reaction. May cause respiratory irritation. May cause damage to organs through prolonged or repeated exposure. Harmful if inhaled. May cause cancer by inhalation.

**Environmental hazards**

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Is not likely mobile in the environment due its low water solubility. Spillage unlikely to penetrate soil.

Toxicity to Soil Dwelling Organisms. Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

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

| Component | CAS No    | Weight % |
|-----------|-----------|----------|
| Copper    | 7440-50-8 | 98.1     |
| Beryllium | 7440-41-7 | 1.9      |

**SECTION 4. FIRST AID MEASURES****General Advice**

If symptoms persist, call a physician.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

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**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Most important symptoms and effects**

May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Self-Protection of the First Aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

**Notes to Physician**

Treat symptomatically.

### SECTION 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Not combustible. approved class D extinguishers.

**Extinguishing media which must not be used for safety reasons**

Water may be ineffective.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. No special precautions required.

**Environmental Precautions**

Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

**Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Pick up and transfer to properly labelled containers.

Refer to protective measures listed in Sections 8 and 13.

### SECTION 7. HANDLING AND STORAGE

**Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

**Storage**

Keep in a dry place. Keep away from acids.

**Specific Use(s)**

Use in laboratories

**SAFETY DATA SHEET****Copper Beryllium rod, alloy C17200****SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters**

| Component | China  | Taiwan   | Thailand  | Hong Kong  |
|-----------|--|--|---|--|
| Copper    | TWA: 1 mg/m <sup>3</sup><br>TWA: 0.2 mg/m <sup>3</sup>                 | TWA: 0.2 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup> |   | TWA: 0.2 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup>       |
| Beryllium | TWA: 0.0005 mg/m <sup>3</sup><br>STEL: 0.001 mg/m <sup>3</sup><br>Skin | TWA: 0.002 mg/m <sup>3</sup>                           | Ceiling: 0.005 mg/m <sup>3</sup><br>STEL: 0.025 mg/m <sup>3</sup><br>TWA: 0.002 mg/m <sup>3</sup> | TWA: 0.002 mg/m <sup>3</sup><br>STEL: 0.01 mg/m <sup>3</sup> |

| Component | ACGIH TLV                      | OSHA PEL  | NIOSH   | The United Kingdom   | European Union                             |
|-----------|--------------------------------|---|---|--|--|
| Copper    | TWA: 0.2 mg/m <sup>3</sup>     | (Vacated) TWA: 0.1 mg/m <sup>3</sup><br>TWA: 0.1 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup>  | IDLH: 100 mg/m <sup>3</sup><br>TWA: 1 mg/m <sup>3</sup><br>TWA: 0.1 mg/m <sup>3</sup> | STEL: 0.6 mg/m <sup>3</sup> 15 min<br>STEL: 2 mg/m <sup>3</sup> 15 min<br>TWA: 1 mg/m <sup>3</sup> 8 hr<br>TWA: 0.2 mg/m <sup>3</sup> 8 hr |  |
| Beryllium | TWA: 0.00005 mg/m <sup>3</sup> | (Vacated) TWA: 2 µg/m <sup>3</sup><br>Ceiling: 2 µg/m <sup>3</sup><br>(Vacated) STEL: 25 µg/m <sup>3</sup><br>(Vacated) Ceiling: 5 µg/m <sup>3</sup><br>TWA: 0.2 µg/m <sup>3</sup><br>STEL: 2 µg/m <sup>3</sup> | IDLH: 4 mg/m <sup>3</sup><br>Ceiling: 0.0005 mg/m <sup>3</sup>                        | STEL: 0.006 mg/m <sup>3</sup> 15 min<br>TWA: 0.002 mg/m <sup>3</sup> 8 hr<br>Carc.   | TWA: 0.0002 mg/m <sup>3</sup> (8h)<br>Skin |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust MDHS 91 Metals and metalloids in workplace air by X-ray fluorescence spectrometry MDHS 99 Metals in air by ICP-AES

**Exposure Controls****Engineering Measures**

None under normal use conditions. Ensure that eyewash stations and safety showers are close to the workstation location. .

**Personal protective equipment****Eye Protection**

Goggles (European standard - EN 166)

**Hand Protection**

No special protective equipment required

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments        |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | -               | EN 374      | (minimum requirement) |
| Nitrile rubber | recommendations   |                 |             |                       |
| Neoprene       |                   |                 |             |                       |
| PVC            |                   |                 |             |                       |

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

No special protective equipment required.

**Large scale/emergency use**

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143

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**Small scale/Laboratory use**

No personal respiratory protective equipment normally required Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Particle filtering: EN149:2001  
 When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|  |                          |  |
|--|--------------------------|--|
| <b>Appearance</b>                              | Bronze                   |  |
| <b>Physical State</b>                          | Solid                    |  |
| <b>Odor</b>                                    | Odorless                 |  |
| <b>Odor Threshold</b>                          | No data available        |  |
| <b>pH</b>                                      | No information available |  |
| <b>Melting Point/Range</b>                     | No data available        |  |
| <b>Softening Point</b>                         | No data available        |  |
| <b>Boiling Point/Range</b>                     | No information available |  |
| <b>Flash Point</b>                             | No information available | <b>Method -</b> No information available |
| <b>Evaporation Rate</b>                        | Not applicable           | Solid                                    |
| <b>Flammability (solid,gas)</b>                | No information available |  |
| <b>Explosion Limits</b>                        | No data available        |  |
| <b>Vapor Pressure</b>                          | 23 hPa @ 20 °C           |  |
| <b>Vapor Density</b>                           | Not applicable           | Solid                                    |
| <b>Specific Gravity / Density</b>              | 8.36 g/cm3               | @ 20 °C                                  |
| <b>Bulk Density</b>                            | No data available        |  |
| <b>Water Solubility</b>                        | Insoluble in water       |  |
| <b>Solubility in other solvents</b>            | No information available |  |
| <b>Partition Coefficient (n-octanol/water)</b> |                          |  |
| <b>Autoignition Temperature</b>                | No data available        |  |
| <b>Decomposition Temperature</b>               | No data available        |  |
| <b>Viscosity</b>                               | Not applicable           | Solid                                    |
| <b>Explosive Properties</b>                    | No information available |  |
| <b>Oxidizing Properties</b>                    | No information available |  |
| <b>Molecular Formula</b>                       | Cu:Be; 98.1:1.9 wt%      |  |

### SECTION 10. STABILITY AND REACTIVITY

|                                 |                                 |
|---------------------------------|---------------------------------|
| <b>Stability</b>                | Stable under normal conditions. |
| <b>Hazardous Reactions</b>      | None under normal processing.   |
| <b>Hazardous Polymerization</b> | No information available.       |
| <b>Conditions to Avoid</b>      | None known.                     |
| <b>Materials to avoid</b>       | No information available.       |

**Hazardous Decomposition Products** Heavy metal oxides. Metal oxides.

### SECTION 11. TOXICOLOGICAL INFORMATION

# SAFETY DATA SHEET

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### Product Information

#### (a) acute toxicity; Toxicology data for the components

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation              |
|-----------|-----------|-------------|------------------------------|
| Copper    |           |             | LC50 > 5.11 mg/L ( Rat ) 4 h |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

#### (d) respiratory or skin sensitization;

Respiratory No data available  
Skin Category 1

No information available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | EU           | UK | Germany | IARC    |
|-----------|--------------|----|---------|---------|
| Beryllium | Carc Cat. 1B |    | Cat. 1  | Group 1 |

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 2

Route of exposure Inhalation  
Target Organs Lungs.

(j) aspiration hazard; Not applicable  
Solid

**Symptoms / effects, both acute and delayed** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity effects

Contains a substance which is: Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

| Component | Freshwater Fish   | Water Flea                                    | Freshwater Algae  | Microtox |
|-----------|---|---|---|----------|
| Copper    | LC50: = 1.25 mg/L, 96h static (Lepomis macrochirus)<br>LC50: = 0.3 mg/L, 96h semi-static (Cyprinus) | EC50: = 0.03 mg/L, 48h Static (Daphnia magna) | EC50: 0.031 - 0.054 mg/L, 96h static (Pseudokirchneriella subcapitata)<br>EC50: 0.0426 - 0.0535 |          |

**SAFETY DATA SHEET****Copper Beryllium rod, alloy C17200**

|  |   |  |  |  |
|--|---|--|--|--|
|  | carpio)<br>LC50: = 0.8 mg/L, 96h<br>static (Cyprinus carpio)<br>LC50: = 0.112 mg/L,<br>96h flow-through<br>(Poecilia reticulata)<br>LC50: = 0.052 mg/L,<br>96h flow-through<br>(Oncorhynchus mykiss)<br>LC50: 0.0068 - 0.0156<br>mg/L, 96h (Pimephales<br>promelas)<br>LC50: < 0.3 mg/L, 96h<br>static (Pimephales<br>promelas)<br>LC50: = 0.2 mg/L, 96h<br>flow-through<br>(Pimephales promelas) |  | mg/L, 72h static<br>(Pseudokirchneriella<br>subcapitata) |  |
|--|---|--|--|--|

**Persistence and Degradability**

**Persistence**  
**Degradability**  
**Degradation in sewage**  
**treatment plant**

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary  
Insoluble in water, May persist.  
Not relevant for inorganic substances.  
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative Potential**

May have some potential to bioaccumulate; Product has a high potential to bioconcentrate

**Mobility in soil**

Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility

**Endocrine Disruptor Information**  
**Persistent Organic Pollutant**  
**Ozone Depletion Potential**

This product does not contain any known or suspected endocrine disruptors  
This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

**SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste from Residues/Unused Products**

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging**

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

**Other Information**

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

**SECTION 14. TRANSPORT INFORMATION**

**Road and Rail Transport**

Not Regulated

**IMDG/IMO**

Not regulated

**IATA**

Not regulated

# SAFETY DATA SHEET

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**Special Precautions for User** No special precautions required

### SECTION 15. REGULATORY INFORMATION

#### International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL     |
|-----------|---|---|------|-------|-----------|------|-----|-------|------|------|------|----------|
| Copper    | -   | X                                       | X    | X     | 231-159-6 | X    | X   | X     | X    |      | X    | KE-08896 |
| Beryllium | X   | X                                       | X    | X     | 231-150-7 | X    | X   | X     | X    |      | X    | KE-02829 |

#### National Regulations

| Component                      | Toxic Chemical Substances Control Act |
|--------------------------------|---------------------------------------|
| Beryllium<br>7440-41-7 ( 1.9 ) | Class II (95 wt%)<br>TRQ = 50 kg      |

### SECTION 16. OTHER INFORMATION

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 12-May-2024  
**Revision Summary** New emergency telephone response service provider.

#### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

#### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative



**Copper Beryllium rod, alloy C17200**

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Physical hazards**

On basis of test data

**Health Hazards**

Calculation method

**Environmental hazards**

Calculation method

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**