

Safety Data Sheet



1. Identification of the Substance/Mixture and the Supplier

Supplier : National Institute of Advanced Industrial Science and Technology (AIST)
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Identity of Substance/Mixture : Certified reference material: NMIJ CRM 5805-a
 High-purity copper for Thermal Expansivity Measurements
 Recommended Use of the Chemical and Restriction on Use : This CRM is intended for use in calibrating push-rod dilatometers and thermomechanical analyzers or as a reference specimen in thermal expansion measurements. Do not use this reference material for other purposes than testing/research.
 This CRM is a reference material (specified in the Japanese Industrial Standard (JIS) Q 0030).

2. Hazards Identification

GHS classification : Water environment : Hazard Category 4 toxicity (Prolonged)
 GHS Label Element : Not assigned
 Signal Word : Danger
 Hazard and toxicity : May cause damage to aquatic life through prolonged or repeated exposure
 Other Hazards : -
 Statement
 Precautionary Statement : [Precaution]
 Do not handle until all safety precautions have been read and understood.
 Get the instruction manual before use.
 Avoid release to the environment.
 Do not eat, drink or smoke when using this product.
 Wash hands thoroughly after handling.
 [Action]
 If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

If in eyes: Rinse with running water for several minutes. Get medical advice/attention.

If on skin: Remove/Take off all contaminated clothing and adhered materials. Rinse skin with running water. Get medical advice/attention if you feel unwell.

[Storage]

This CRM should be kept in a clean place at room temperature less than 25 °C and it is recommended to be stored in a nitrogen atmosphere.

[Disposal]

Dispose of this reference material in accordance with applicable legislation and local government ordinance.

Entrust disposal of this reference material to a professional waste disposal company licensed by prefectural governor.

The other hazards than the above do not result in classification or are not classifiable.

3. Composition/Information on Ingredients

Substance/Mixture	:	Substance
Chemical name	:	Copper
Amount	:	99 % or more
Chemical Formula or Structural Formula	:	Cu
Atomic weight	:	63.5
Reference Number in Gazetted List in Japan	:	Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. : - Industrial Safety and Health Act : -
CAS No.	:	7440-50-8
Hazardous substance	:	Copper

4. First-aid Measures

If in Eyes	:	Rinse away thoroughly with clean water. Get medical advice/attention.
If on Skin	:	Remove contaminated clothes, shoes, and garment. Rinse away thoroughly with plenty of clean water. If developing some symptoms, seek medical advice as needed.
If Inhaled	:	Remove victim to fresh air and keep at rest. Get medical advice/attention.
If Ingested	:	Make victim drink plenty of water to induce vomiting. Get medical advice/attention if there is any problem.
Predicted immediate and delayed symptoms	:	-
Most important	:	-

symptom/effect

Protecting Personnel : Use personal protective equipment.
in emergency
measures

5. Fire-fighting Measures

- Extinguishing Media : This material is incombustible, use a fire extinguishing agent suitable for surrounding fire.
- Specific Hazards : This CRM is nonflammable. But powdered material is flammable, there is a possibility of dust explosion. For powdered material may react with water liberating flammable or explosive gases.
- Specific extinguishing measure : Remove any combustible sources from the seat of fire and extinguish using appropriate extinguishing agent. Transfer the movable container to a safe place promptly. If impossible to transfer, use water spray to cool the periphery.
- Protection of Fire-Fighters : Carry out fire-fighting from the windward in order to avoid breathing hazardous gas. Use personal protective equipment such as fire protection clothing, heat-resistant clothing, protective clothing, breathing apparatus, circulating oxygen respirator, rubber gloves, and rubber boots.

6. Accidental Release Measures

- Personal Precaution : Remove ignition source in the vicinity immediately. Prepare fire-fighting equipment for the possibility of fires.
- Protective equipment and emergency procedure : Ventilate the affected areas thoroughly, if it is in an indoor environment, until the clean-up operation is completed. Use appropriate personal protective equipment during the operation to avoid skin contact of splash etc. and inhalation of dust and gas.
- Environmental Precautions : Take precautions to prevent spillage from draining into rivers etc. to adversely impact the environment. Make it sure to appropriately treat contaminated wastewater in order to prevent untreated wastewater from being released into the surrounding environment.
- Recovery and Neutralization : Collect spillage in empty containers and close the containers tightly.
- Prevention of Secondary Disaster : Mark the restricted area with rope etc. to keep out unauthorized people. Carry out the clean-up operation from the windward and make people on the leeward side evacuate.

7. Handling and Storage Precautions

- Handling Engineering Precautions : Use appropriate personal protective equipment to avoid inhalation and contact with eyes and skin.
- Local and General : When vapor or mist is generated, seal the source, and provide

Ventilation	local exhaust ventilation or central ventilation.
Precautions for Safe Handling	: Avoid rough handling such as turning over, dropping, giving a shock to or dragging containers. Prevent spill, overflow and scattering, and avoid vapor generation. Keep container tightly closed after using this reference material. Wash hands, face etc. thoroughly and gargle after handling this reference material. Restrict drinking, eating and smoking to a designated area. Do not bring gloves and other contaminated personal protective equipment into staff room. Make a place handling this reference material a restricted area to keep out unauthorized people. Use appropriate personal protective equipment to avoid inhalation and contact with eyes, skin and clothing. Use local exhaust ventilation system when handling in an indoor workshop
Storage	
Appropriate Storage Conditions	: This CRM should be kept at 25 °C or below, and under a nitrogen gas atmosphere.
Safe Container	: Glass, polyethylene, polypropylene, etc.
Packaging Material	

8. Exposure Controls/Personal Protection

Threshold Limit Value

- Not specified

Permissible Concentration

- ACGIH TLV-TWA : 0.2 mg/m³(hume)
1 mg/m³(dusts and mists)
- Values recommended by Japan : Not specified

Society for Occupational Health

Engineering Controls

- Ventilation/Exhaust : Local ventilation system or General ventilation system
- Safety Control/ Gas Detection : Measuring equipment, Detecting tube
- Storage Precaution : Seal. Keep away from flammable substances, reducing agents and strong oxidizers.

Personal Protective Equipment (PPE)

- Respiratory System : Gas mask for organic gases, Compressed air open-circuit self-contained breathing apparatus, if necessary.
- Hands : Protective gloves
- Eyes : Safety goggle
- Skin and Body : Protective clothing, Face protection

Hygiene Controls

Handle this reference material in accordance with industrial health and safety standards.

9. Physical and Chemical Properties

• Appearance, etc.	: Solid
• Color	: Browned
• Odor	: Odorless
• pH	: No data
• Melting point	: 1083 °C
• Boiling point	: 2582 °C
• Flashing point	: No data
• Explosive range	: No data
• Vapor pressure	: No data
• Relative vapor density(Air=1)	: No data
• Specific gravity or bulk specific gravity	: No data
• Solubility	: 8.9 g/ml (20 °C)
• <i>n</i> -Octanol/water partition coefficient (Log Po/w)	: -0.57
• Auto-ignition temperature	: No data

10. Stability and Reactivity

- ◇Stability
 - Stable in normal conditions
- ◇Reactivity
 - In the air it is gradually oxidized.
- ◇Conditions to Avoid
 - Oxygen, oxidizing agents
- ◇Hazardous Decomposition Products
 - Copper oxides

11. Toxicological Information

Acute Toxicity	Upon ingestion, causing nausea, vomiting, abdominal pain, etc. Oral Rabbit LDLo=120 µg/kg Abdominal cavity Mouse LD50=0.07 mg/kg
Skin Corrosion/ Irritation	If on skin it causes the symptoms of redness.
Serious Eye Damage/ Eye Irritation	If in eyes, it causes eye irritation.
Respiratory Sensitization	No data
Skin Sensitization	No data
Germ Cell Mutagenicity	No data
Carcinogenicity	EPA group D(not specified for human Carcinogenicity)
Reproductive Toxicity	Not specified.
Respiratory toxicity	Not specified.

12. Ecological Information

Degradability, concentration

- Not degradable by-microorganisms
0%by BOD

Bioaccumulation

- No data available

Ecotoxicity

- Aquatic toxicity (chronic) May be harmful by the long-term effects, harmful by the long-term effects may be harmful (Category 4)

13. Disposal Considerations

Residual Waste : Dispose of this reference material in accordance with applicable legislation and local government ordinance.
When the above-mentioned treatments are not possible, entrust disposal of residual waste to a professional waste disposal company licensed by prefectural governor.

Contaminated Container and Package : Dispose of containers after thoroughly removing their contents.

14. Transport Information

UN Number : N/A

UN Classification : -

Material name : -

Container grade : -

ICAO/IATA : -

Marine pollutant : N/A

Precautions : Transport this reference material carefully while keeping it away from direct sunlight and fire and preventing accidental release due to falling, overturning, etc.

15. Regulatory Information

- No applicable laws and regulations

16. Other Information

Others

The information in this document is not intended to be exhaustive and is based on currently available information and data. The measures given in this document are applicable only to normal handling conditions. When handling this reference material under special conditions etc., it is recommended to take safety measures appropriate to each specific application and context of use. This document is intended to provide information and not intended to guarantee anything in handling this reference material.

