

## MATERIAL SAFETY DATA SHEET

USA

### 1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY

MSDS Number: 101  
Trade Names: NAVY 125S MATL 322  
Product Codes: 411042  
Synonyms: Copper Powder  
Manufacturer: SCM Metal Products, Inc.  
2601 Weck Drive, Box 12166  
Research Triangle Park, NC 27709-2166  
Emergency: **CONTACT: Chem-Tel Inc.**  
**For:** U.S., Canada, Puerto Rico & U.S. Virgin Islands  
(800) 255-3924  
**Outside North America:**  
(813) 248-0585 (CALL COLLECT)

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS #</u>	<u>Range % by Wt</u>
Copper	7440-50-8	>98.75

### 3. HAZARDS IDENTIFICATION

#### EYE CONTACT:

May cause eye irritation.

#### SKIN CONTACT:

May cause sensitization by skin contact.

#### INHALATION:

Dust or fume from metallizing, welding or similar processes can cause respiratory irritation and/or metal fume fever (nausea, vomiting, fever, diarrhea).

#### INGESTION:

May cause nausea, vomiting, diarrhea and metal fume fever.

### 4. FIRST AID MEASURES

#### EYES:

Flush eyes with plenty of water, lifting the upper and lower eyelids occasionally.

#### SKIN:

Wash the skin using soap or a mild detergent and warm water.

#### INHALATION:

Move the exposed person to fresh air at once. Get medical attention.

#### INGESTION:

Get medical attention.

### 5. FIRE FIGHTING MEASURES

#### EXTINGUISHING MEDIA:

Graphite, dolomite or sodium chloride. Do NOT use water.

#### UNUSUAL FIRE AND EXPLOSION HAZARDS:

Copper powder with particles sizes 50  $\mu$ m size range are classified as weakly explosive by the U.S. Bureau of Mines Report RI-6516. When present as a dust cloud, will NOT explode readily in air. Not easily ignited by sparks.

#### FIRE FIGHTING EQUIPMENT:

Wear full bunker gear including a positive pressure self-contained breathing apparatus.

#### PRECAUTIONS:

Keep away from ignition sources (e.g., heat and open flames). Use with adequate ventilation. Keep container closed.

#### HAZARDOUS DECOMPOSITION:

None identified.

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## 6. ACCIDENTAL RELEASE MEASURES

1. Restrict the area to those persons wearing respiratory protection. Do not allow unprotected people into the area until cleanup has been completed.
  2. Ventilate the area thoroughly.
  3. Collect the powder in a manner that minimizes further dust generation (i.e., use wet or HEPA vacuum methods).
  4. Liquids containing powder should be absorbed in vermiculite, dry sand, or earth before disposal. Keep out of sewers and waterways.
  5. Recycle or dispose of as a waste (see Section 13).
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## 7. HANDLING AND STORAGE

Avoid dust generation. Wash thoroughly after handling. Avoid dust generation from dried paste.  
Store powder in a dry area, -18° to 38°C.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### *Ventilation Requirements:*

Keep dust and fume levels below occupational exposure limits. Provide adequate local exhaust ventilation at the work area where spraying and fusing are being done.

### *Personal Protective Equipment:*

#### EYES:

Wear ANSI approved chemical goggles or safety glasses as dictated by conditions of use.

#### SKIN:

The use of impervious gloves or barrier cream to protect skin is recommended.

#### INHALATION:

Do not breathe dust or fume. Use with adequate ventilation. Use NIOSH/MSHA approved respirator.

#### OTHER:

Eating and smoking should not be permitted in areas where dust or fume is present.

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## 9. CHEMICAL AND PHYSICAL PROPERTIES

APPEARANCE AND ODOR	Reddish powder; odorless
FLASH POINT	Above 700°C
FLAMMABILITY	Non-flammable
AUTOIGNITION TEMPERATURE	Not determined
pH	Not applicable
VAPOR PRESSURE	1 mm Hg @ 1628°C
VAPOR DENSITY	Not volatile
MELTING POINT	1083°C
BOILING POINT	2595°C
SOLUBILITY IN WATER	Not soluble
SOLUBILITY IN FAT	Not determined
OCTANOL/WATER PARTITION COEFFICIENT	Not determined
RELATIVE DENSITY (WATER=1)	Approximately 2
VISCOSITY	Not applicable

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## 10. STABILITY AND REACTIVITY

### STABILITY:

Stable to ignition temperature of 700°C.

### INCOMPATIBLE MATERIALS:

Copper is explosively incompatible with sodium azide. Copper dusts may react with acetylene gas to form copper acetylides, which are sensitive to shock. Copper mists may react with magnesium to form flammable hydrogen gas.

### HAZARDOUS DECOMPOSITION

None identified.

HAZARDOUS POLYMERIZATION:  
Will not occur.

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### 11. TOXICOLOGICAL INFORMATION

Copper is an essential element of mammalian metabolism. Copper metal has little or no serious toxicity. The most common adverse effect associated with copper is the acute inhalation of copper fume during refining or welding. Inhalation of copper fume or dust may result in metal fume fever, which is characterized by upper respiratory irritation, chills, metallic or sweet taste, nausea, and aching muscles. Attacks usually begin after 4-8 hours of exposure and last only 24-48 hours. Inhalation of fumes has been reported to sometimes cause discoloration of the skin and hair. Nausea and vomiting may result if large amounts of copper metal are ingested. This is probably due to the conversion of the swallowed metal copper to its irritating salts. It is unlikely that poisoning by ingestion in industry would progress to a serious point because small amounts induce vomiting, emptying the stomach of copper salts. High airborne concentrations of copper metal would be expected to cause mechanical irritation of the eyes and respiratory tract. Metallic copper may cause keratinization of the hands and soles of the feet, but it is not commonly associated with industrial dermatitis.

No component of this product present at levels greater than 0.1% is identified as a carcinogen by the U.S. National Toxicology Program, the U.S. Occupational Safety and Health Act, or the International Agency for Research on Cancer (IARC).

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### 12. ECOLOGICAL INFORMATION

No data on the ecological effects of this product have been developed.

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### 13. DISPOSAL CONSIDERATIONS

Disposal must be in accordance with applicable local, state and federal regulations (contact local, state, or federal environmental agency for specific rules). Do not dump into sewers, on the ground, or into any body of water.

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### 14. TRANSPORTATION INFORMATION

DOT: RQ, Environmentally Hazardous Substance, Solid NOS (contains Copper), 9, UN3077, III Marine Pollutant

DOT EXCEPTION: Under 49 CFR 171.4, Except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicles, rail cars, and aircraft.

ADR/RID: Not regulated

IMO/IMDG: RQ Environmentally Hazardous Substances, Solid, NOS (contains Copper), 9, UN3077, III Marine Pollutant

ICAO/IATA: Not regulated if shipped in non-bulk packaging

REPORTABLE QUANTITY: Copper 5,000 lbs.

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### 15. HAZARDOUS MATERIAL IDENTIFICATION SYSTEM / REGULATORY INFORMATION.

Health Hazard: 1 - Slight: Slightly Toxic - May cause slight irritation.

Flammability Hazard: 0 - Minimal: Will not burn under normal conditions.

Reactivity Hazard: 0 - Minimal: Normally stable, does not react with water.

Maximum Personal Protection: E - Safety Glasses, Gloves & Dust Respirator.

#### OCCUPATIONAL EXPOSURE LIMITS:

##### Copper Dust and Mists

CAS# 7440-50-8

EINECS# 231-159-6

ACGIH TLV 1.0 mg/m<sup>3</sup>

NIOSH IDLH 100 mg/m<sup>3</sup>

OSHA PEL 1.0 mg/m<sup>3</sup>

*IDLH=Immediately dangerous to life and health.*

*Copper is on the SARA Title III, Section 313 Toxic Chemicals List.*

##### Copper Fume

ACGIH TLV 0.2 mg/m<sup>3</sup>

NIOSH IDLH 100 mg/m<sup>3</sup>

OSHA PEL 0.1 mg/m<sup>3</sup>

*IDLH = Immediately dangerous to life and health.*

*Copper is on the Sara Title III, Section 313 Toxic Chemicals List.*

All chemical constituents of these products are listed on the TSCA inventory of chemical substances maintained by the U.S. Environmental Protection Agency (EPA).

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**16. OTHER INFORMATION**

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