# SAFETY DATA SHEET
# SPHERICAL COPPER POWDER

C.A.S. Number: 7440-50-8

## SECTION 1 – IDENTIFICATION

| | |
|---|---|
| **Product Name:** | Spherical Copper Metal Powder |
| **Synonyms:** | Copper Powder, Copper |
| **CAS No.:** | 7440-50-8 |
| **Supplier's Details:** | |
| **Address:** | Heeger Materials Inc.<br>230 Steele St Denver<br>CO 80206<br>United States |
| **Telephone/Fax Numbers:** | 925-385-8104 |
| **Emergency Contact:** **CHEMTREC** | (800) 424-9300<br>(703) 527-3887 (Outside the USA) |
| **Product Use:** | For powder metallurgy |
| **Restrictions:** | applications. Industrial use only. |

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## SECTION 2 – HAZARDS IDENTIFICATION

**Health Hazards**

| | |
|---|---|
| **Acute Toxicity, Oral:** | Category 4 |
| **Acute Toxicity, Inhalation:** | Category 4 |
| **Irritant, Eye:** | Category 2B |
| **Copper Fume: Irritant, Respiratory:** | Category 3 |

**Environmental Hazards**

| | |
|---|---|
| **Acute Aquatic Toxicity:** | Category 1 |

**Physical Hazards:** None known

**Pictogram:**

**Signal Word: Warning**

Information presented herein is believed to be accurate and reliable but is not intended to meet any specification and does not imply any guarantee or warranty by Atlantic Equipment Engineers, Inc. For more information and assistance, please call (201) 828-9400.

**Hazard Statements**

| | |
|---|---|
| **H302:** | Harmful if swallowed. |
| **H335:** | May cause respiratory irritation. |
| **H320:** | Causes eye irritation. |
| **H412:** | Harmful to aquatic life with long lasting effects. |

**Precautionary Statements:**

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|---|---|
| **P264:** | Wash hands thoroughly after handling. |
| **P261:** | Avoid breathing dust/fume/gas/mist/vapors/spray. |
| **P270:** | Do not eat, drink or smoke when using this product. |
| **P273:** | Avoid release to the environment. |
| **P284:** | Wear respiratory protection. |
| **P301 + P330:** | IF SWALLOWED: Rinse mouth with water. |
| **P304 + P340:** | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |

## SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

| Component | CAS # | Range % by Wt. | EINECS # |
|---|---|---|---|
| Copper | 7440-50-8 | 99.4-100 | 231-159-6 |
| Lithium Stearate | 4485-12-5 | 0-0.6 | 224-772-5 |

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## SECTION 4 – FIRST-AID MEASURES

**Eyes:** Flush eyes with plenty of water, lifting the upper and lower eyelids occasionally. Get medical attention if irritation develops.

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

**Inhalation:** Move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Get immediate medical attention. Fume from metallizing, welding or similar processes can cause respiratory irritation and/or metal fume fever (respiratory irritation, chills, nausea).

**Ingestion:** If person is conscious, rinse mouth and give large quantities of water to drink. Get medical attention.

## SECTION 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 50µ 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). None required. Keep container closed.

**Hazardous Decomposition:** Upon heating in the presence of air, material decomposes to sulfur dioxide, cuprous oxide, and copper sulfate.

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

Restrict the area to those persons wearing respiratory protection. Do not allow unprotected people into the area until cleanup has been completed.

Ventilate the area thoroughly.

Collect the powder in a manner that minimizes further dust generation.

Keep out of sewers and waterways.

Recycle or dispose of as a waste (see Section 13).

## SECTION 7 – HANDLING AND STORAGE

Avoid dust generation. Wash thoroughly after handling. Eating, drinking, and smoking are prohibited in work areas. Store powder in a dry area, -18° to 38 °C.

## SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

**Ventilation Requirements:** Keep dust and fume levels below occupational exposure limits. Local exhaust ventilation may be necessary for some operations.

**Personal Protective Equipment**

**Eyes:** Wear dust-proof safety goggles. Contact lenses are not recommended.

**Skin:** None required; however, use of protective gloves and clothing is good industrial practice. The use of impervious gloves or barrier cream to protect the skin is recommended.

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

**Occupational Exposure Limits**

**Copper Dust and Mists**

| | |
|---|---|
| **ACGIH TLV:** | 1.0 mg/m³ |
| **NIOSH IDLH:** | 100 mg/m³ |
| **OSHA PEL:** | 1.0 mg/m³ |

*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/m³ |
| **NIOSH IDLH:** | 100 mg/m³ |
| **OSHA PEL:** | 0.1 mg/m³ |

*IDLH = Immediately dangerous to life and health.*

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

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## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|
| **Appearance and Odor:** | Red to reddish-brown; 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 determined. |
| **Melting Point:** | 1083 °C |
| **Boiling Point:** | 2580 °C @ 760 mm Hg |
| **Solubility in Water:** | Not soluble. |
| **Solubility in Fat:** | Not determined. |
| **Octanol/Water Partition Coefficient:** | Not determined. |
| **Relative Density (Water=1):** | 8.2 |
| **Viscosity:** | Not applicable. |

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## SECTION 10 – STABILITY AND REACTIVITY

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|---|---|
| **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. |

## SECTION 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 larger 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).

## SECTION 12 – ECOLOGICAL INFORMATION

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

## SECTION 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.

## SECTION 14 – TRANSPORT INFORMATION

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|---|---|
| **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 packaging transported by motor vehicles, rail cars, and aircraft. |
| **ADR/RID:** | UN3077, Environmentally Hazardous Substances, Solid, NOS (contains Copper), 9, III Marine Pollutant. |
| **IMO/IMDG:** | UN3077, Environmentally Hazardous Substances, Solid, NOS (contains Copper), 9, III Marine Pollutant. |
| **ICAO/IATA :** | Not regulated if shipped in non-bulk packaging. |
| **Reportable Quantity:** | Copper 5,000 lbs. |

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## SECTION 15 – REGULATORY INFORMATION

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|---|---|
| **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. |

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

## SECTION 16 – OTHER INFORMATION

"Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Heeger Materials Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Heeger Materials Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information.

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