



PRODUCT DATA SHEET
(Copper-Tungsten Composites)

Date: April 10, 2015

1: Identification of the article/product and of the company

1.1: Product identifier

| | |
|----------------------------------|--|
| Article/Product Name | Copper-Tungsten Composites (Cu-W), CW, scrap |
| Chemical Name | Tungsten (W) with Copper (Cu) |
| CAS No. | Not applicable for articles |
| EINECS No. | Not applicable for articles |
| Molecular weight | Not applicable for articles |
| REACH Registration number | Not applicable for articles |

1.2: Relevant identified uses of the article and uses advised against

| | |
|-----------------------------|---|
| Identified Uses | Resistance Welding, Electrical Contacts, EDM & ECM Electrodes, Heat Sinks |
| Uses advised against | Not applicable |

1.3: Details of the supplier of the article information data sheet

| | |
|--|--|
| Name | Mi-Tech Metals, Incorporated |
| Address | 4701 Massachusetts Avenue, Indianapolis, Indiana 46218 |
| Phone | (317) 549-4290, 1-800-624-1895 |
| Fax | (317) 549-4295 |
| E-mail of competent person responsible for the Article Information Data | rstahl@mi-techmetals.com |

1.4 : Emergency telephone number

| | |
|----------------------|----------------|
| Emergency No. | 1-800-624-1895 |
|----------------------|----------------|

2: Hazards Identification

Fragmentation hazard: Always wear safety equipment and keep machine guards in place.

Breathing hazard: Wet or dry grinding may produce hazardous dust or mist. Use ventilation control and/or respiratory protection.

Skin: May cause skin irritation after prolonged or repeated exposure to particulates or dust.

Ingestion: Not normally a hazard due to the physical form of the article. Large amounts of particulates or dust may cause gastrointestinal effects.

2.1: Classification of the article

| | |
|---|----------------|
| According to OSHA 29 CFR 1910.1200 HCS | Not classified |
|---|----------------|

2.2: Label elements

| | |
|------------------------------------|------------------------------|
| Hazard pictogram(s): | Not applicable for articles |
| Signal word: | Not applicable for articles |
| Hazard Statement(s): | Not applicable for articles |
| Precautionary statement(s): | Not applicable for articles. |

2.3: Other Hazards

| | |
|--------------------|-----------------------------|
| PBT or vPvB | Not applicable for articles |
|--------------------|-----------------------------|

3: Article Composition

3.1: Information on article constituents

| Substance Name | EINECS Number | CAS Number | Concentration range, % by weight | Classification DSD/CLP |
|-----------------------|----------------------|-------------------|---|---|
| Tungsten | 231-143-9 | 7440-33-7 | 50-85 | Tungsten metal (particle size >1.5 µm) is not classified under DSD/CLP. |
| Copper | 231-159-6 | 7440-50-8 | 15-50 | Copper is not classified under DSD/CLP. |

4: First aid measures

4.1: Description of first aid measures

Cu-W articles, exposure to high volumes of powder/dust is not anticipated under normal conditions and use. If article is ground may produce exposure to dusts of hazardous substances, which may be inhaled, ingested or come in contact with eyes and skin.

| | |
|-----------------------|--|
| Eyes | Rinse opened eye for at least 15 minutes under running water. Seek medical attention if required. |
| Inhalation | Remove to fresh air. Seek medical attention if required. |
| Ingestion | Rinse mouth with water and drink plenty of water afterwards. Seek medical attention if required. Never induce vomiting to an unconscious person. |
| Skin | Remove contaminated clothing. Immediately wash with soap and water and rinse thoroughly. Seek medical attention if required. |
| General advise | After first aid, get appropriate medical attention. |

4.2: Most important symptoms and effects, both acute and delayed

Inhalation of powder or dust may cause mechanical eye and skin irritation or mild respiratory tract irritation.

4.3: Indication of any immediate medical attention and special treatment needed

None known

5: Firefighting measures

5.1: Extinguishing media

Cu-W articles as provided are not a fire hazard. Use suitable extinguishing media for surrounding material and type of fire.

5.2: Special hazards arising from the article use

During normal operation and usage Cu-W articles are not a fire hazards. Fine dust generated during machining or grinding may ignite if allowed to accumulate and are exposed to an ignition source. Cover burning material with an inert powder such as sand or limestone. Class D dry type for dry powder. May emit metal oxide fumes under fire conditions.

5.3: Advice for firefighters

Will oxidize above 1300 degrees F.

6: Accidental release measures

6.1: Personal precautions, protective equipment and emergency procedures

Cu-W articles do not present hazards that require accidental release measures. However, wet or dry grinding of may produce hazardous dust or mists. Avoid inhalation and contact with skin and eyes. Use personal protective equipment (i.e. gloves, safety goggles, dust respirator) as specified in Section 8 of this article information data sheet. Ventilate area if necessary.

6.2: Environmental precautions

In the case of generation of dust/mist, avoid release into the environment

6.3: Methods and material for containment and cleaning up

Cu-W articles should be recycled. Recycler must comply with Federal, State, and Local regulations.

6.4: Reference to other sections

See sections 8 and 13 for exposure controls and disposal considerations.

7: Handling and storage

Cu-W articles as provided do not present hazards requiring precautions for safe handling and storage. However, operations such as grinding may generate dusts or mists which may require special handling procedures. The procedures described below relate to these operations.

7.1: Precautions for safe handling

Under normal operating conditions, the use of Cu-W articles do not require special safety precautions beyond normal safety procedures such as safety glasses and gloves. Wash hands thoroughly after handling. Minimize generation of powder/dust and avoid dispersion of dust in air.

7.2: Conditions for safe storage, including any incompatibilities

Cu-W articles as provided do not present hazards requiring precautions for safe storage. Avoid storage near strong acids or alkalis.

7.3: Specific end use(s)

Resistance Welding, Electrical Contacts, EDM & ECM Electrodes, Heat Sinks.

8: Exposure control / Personal protection

The exposure control parameters listed below are for operations with Ag-W articles that generate dusts or fumes from grinding.

8.1 : Control parameters

| Material | OSHA PEL mg/m3 | | ACGIH TLV mg/m3 | | NIOSH REL mg/m3 | |
|----------|-------------------------------|------|-------------------------------|-------------------------------|-----------------|------|
| | TWA | STEL | TWA | STEL | TWA | STEL |
| Tungsten | 5 (insoluble) 1 (soluble) | 10 | 5 (insoluble) 1 (soluble) | 10 (insoluble) 3 (soluble) | 5 | 10 |
| Copper | 0.1 (fume), 1 (dusts & mists) | | 0.2 (fume), 1 (dusts & mists) | | 1 | |

8.2: Exposure controls

Appropriate engineering controls:

In the case of dust generation during wet or dry grinding of Cu-W articles, engineering controls may include local ventilation systems with dust filters depending on degree of process automation and containment (e.g. closed vs. open processes).

Individual protection measures:

Eye/face protection

Use of safety glasses as appropriate and reasonably necessary.

Skin protection

Use of butyl rubber, neoprene or PVC gloves and work clothes as appropriate and reasonably necessary.

Respiratory protection

In the case of dust generation, use of respiratory protection as appropriate and reasonably necessary (e.g. P-Series particulate respirators suitable for protection against particulates that may contain oil).

Ventilation

Use local exhaust ventilation which is adequate to limit personal exposure to airborne dust to levels which do not exceed the appropriate PEL or TLV. If such equipment is not available, use respiratory protection as specified above.

9: Physical and chemical properties

| | |
|-------------------------------------|---|
| Appearance | Copper Colored |
| Odor | Odorless |
| Odor threshold | Not applicable as substances are odorless |
| pH | Not relevant due to physical form |
| Melting/freezing point | 3390-3423 °C (W) 1085 °C (Cu) |
| Initial boiling point/boiling range | 5555-5700 °C (W) 2562 °C (Cu) |
| Flash point | Not applicable |

| | |
|---|---|
| Evaporation rate | Not applicable |
| Flammability | Non-Flammable |
| Upper/lower flammability or explosive limits | Not applicable |
| Vapor pressure | Not applicable |
| Vapor density | Not applicable |
| Relative density | 11.30-16.43 g/cm ³ |
| Solubility in water | Insoluble |
| Partition coefficient (noctanol/water) | Not relevant as the substances are inorganic |
| Auto-ignition temperature | Tungsten metal is not a self-heating substance at particle sizes >0.9 um. |
| Decomposition temperature | Greater than 3390-3423 °C (W melting point) 1085 °C (Cu melting point) |
| Viscosity | Not relevant due to physical form |
| Explosive properties | Not explosive |
| Oxidizing properties | Not oxidizing |

10: Stability and reactivity

10.1: Reactivity

Cu-W articles are not reactive.

10.2: Chemical stability

Cu-W articles are chemically stable.

10.3: Possibility of hazardous reactions

Not applicable.

10.4: Conditions to avoid

Avoid creating or accumulating fine dust.

10.5: Incompatible materials

Nitric Acid will cause oxidation of the copper and form Nitric Oxide. Avoid other strong acids and alkalis.

10.6: Hazardous decomposition products

Metal oxide fumes.

11: Toxicological information

Cu-W articles as provided do not present a human hazard.

STOT- Repeated Exposure:

Tungsten compounds are considered somewhat toxic. However, the element itself does not constitute an important health hazard. Exposure is related chiefly to any dust created. The feeding of 2, 5 and 10% of diet as tungsten metal over a period of 70 days has shown no marked effect upon the growth of rats, as measured in terms of gain in weight. Heavy exposure to the dust or the ingestion of large amounts of the soluble compounds produces changes in body weight, behavior, blood cells, choline esterase activity and sperm in experimental animals.

Chronic exposure to copper dust can irritate the respiratory tract, nose, mouth, and eyes, and can cause headaches, dizziness, nausea, and diarrhea. Ingestion of excessive amounts of copper may cause gastrointestinal distress. Chronic ingestion may cause damage to the liver and kidneys.

Carcinogenicity: Tungsten and Copper are not classified as carcinogenic.

12: Ecological information

Cu-W articles as provided to do not present an environmental hazard.

12.1: Persistence and degradability

Not applicable

12.2: Bioaccumulative potential

Not applicable

12.3: Mobility in soil

Not applicable

12.4: Results of PBT and vPvB assessment

Not applicable

12.5: Other adverse effects

None known

13: Disposal considerations

Owners are encouraged to take advantage of recycling programs. Cu-W articles are valuable articles that should be sent to an appropriate reclamation facility, if available. If material cannot be sent to a reclaim facility, dispose of all waste product and containers in accordance with local, state/provincial, federal, and national regulations.

14: Transport information

Cu-W articles are not classified or regulated.

15: Regulatory information

15.1: Safety, health and environmental regulations/legislation specific for the article

National Regulations: See 40 CFR 372 for reporting requirements.

U.S. Superfund Amendments and Reauthorization Act (SARA) Title III:

SARA (311/312) HAZARD CATEGORIES:

SARA 313: This product contains the following SARA 313 Toxic Release Chemicals.

| Chemical Name | CAS Number | Concentration |
|-------------------|------------|---------------|
| Copper (metallic) | 7440-50-8 | >1% |

TSCA: This components in this material are registered under the regulation of the Toxic Substance Control Act.

15.2: Chemical safety assessment

Chemical safety reports (CSR)/chemical safety assessments (CSA) are not required for articles.

16: Other information

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|------------------------------------|---------|
| Revision(s): April 10, 2015 | New SDS |
|------------------------------------|---------|

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| References: | |
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End of Product Data Sheet

Disclaimer:

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