

# Tungsten Alloy

## 1 PRODUCT AND SUPPLIER IDENTIFICATION

**Product Name:** Tungsten Heavy Alloy (WHA), High Density Tungsten, Heavy Metal Tungsten Alloy, scrap, EA17, EA17M, EA17.5, EA17.5M, EA17.7, EA18, EA18M, EA18.5M

**Chemical Name:** Tungsten (W) with Nickel (Ni), and Iron (Fe) or Copper (Cu), Tungsten (W) with Nickel (Ni), Iron (Fe), and Copper (Cu) or Molybdenum (Mo)

Supplier: Stanford Advanced  
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**24 HOUR EMERGENCY ASSISTANCE:** CHEMTREC 800-424-9300

Identified Uses: Scientific Research Weights and counterbalances, rotating inertia members, boring bars and grinding quills, radiation shielding, ordnance components, and high temperature tooling.

## 2 HAZARDS IDENTIFICATION

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

**Breathing hazard:** Wet and 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.

**GHS Classification (29 CFR 1910.1200):** Not classified as hazardous

**GHS Label Elements:**

**Signal Word:** N/A

**Hazard Statements:** N/A

**Precautionary Statements:** N/A

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

<b>Ingredient:</b>	<b>CAS#:</b>	<b>%:</b>	<b>EC#:</b>	<b>Classification DSD/CLP:</b>
Tungsten	7440-33-7	~88-98	231-143-9	Tungsten metal (particle size >1.5 µm) is not classified under DSD/CLP
Nickel	7440-02-0	~2-8	231-111-4	CLP: Carc. Cat. 2, STOT RE Cat. 1, Skin Sens. Cat. 1, Aquatic Chronic Cat. 3 DSD: Carc. Cat. 3; R40, T;R48/23, R43, R52-53
Iron	7439-89-6	~0-3	231-096-4	Iron is not classified under DSD/CLP.
Copper	7440-50-8	~0-4	231-159-6	Copper is not classified under DSD/CLP.
Molybdenum	231-107-2	~0-4	7439-98-7	Molybdenum is not classified under DSD/CLP.

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### 4 FIRST AID MEASURES

**General Measures:** WHA sintered articles, exposure to high volumes of powder/dust is not anticipated under normal conditions and use. Subsequent operations such as grinding, melting or welding may produce potentially hazardous dust or fumes which can be inhaled or come in contact with the skin or eyes.

**INHALATION:** Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.

**INGESTION:** Rinse mouth with water. Do not induce vomiting. Seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

**SKIN:** Remove contaminated clothing, brush material off skin, wash affected area with soap and water. Seek medical attention if symptoms persist.

**EYES:** Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

**Most Important Symptoms/Effects, Acute and Delayed:** WHA sintered articles, exposure to high volumes of powder/dust is not anticipated under normal conditions and use. Inhalation of powder or dust may cause mechanical eye and skin irritation or mild respiratory tract irritation.

**Indication of Immediate Medical Attention and Special Treatment:** None known.

### 5 FIREFIGHTING MEASURES

**Extinguishing Media:** WHA sintered articles as provided are not a fire hazard. Use suitable extinguishing media for surrounding material and type fire.

**Unsuitable Extinguishing Media:** No information available.

**Specific Hazards Arising from the Material:** This product does not present fire or explosion hazards as shipped. Small chips, fine turnings and dust from processing may be ignitable. May emit metal oxide fumes under fire conditions.

**Special Protective Equipment and Precautions for Firefighters:** Will oxidize above 1300 degrees F. Full face, self-contained breathing apparatus and full protective clothing when necessary.

### 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment, and Emergency Procedures:** WHA sintered articles as provided do not present hazards that require accidental release measures. However, wet or dry grinding of WHA sintered articles may produce hazardous dust or mist. Wear appropriate respiratory and protective equipment specified in section 8. Avoid dust formation. Avoid contact with skin and eyes. Avoid breathing dust or fume. Ventilate area if necessary.

**Methods and Materials for Containment and Cleaning Up:** Sweep or scoop up. Place in a closed container for further handling and disposal. Scrap can be collected for recycling.

**Environmental Precautions:** Do not allow to enter drains or to be released to the environment.

### 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Avoid creating dust. Provide adequate ventilation if dusts are created. See section 8 for information on personal protection equipment.

**Conditions for Safe Storage:** Store in a sealed container. Store in a cool, dry area. See section 10 for more information on incompatible materials.

### 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>Exposure Limits: OSHA/PEL:</b>		<b>ACGIH/TLV:</b>
Tungsten	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>

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Nickel 1 mg/m<sup>3</sup> 1.5 mg/m<sup>3</sup>  
Iron No exposure limit established No exposure limit established

**Engineering Controls:** Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

**Respiratory Protection:** If permissible levels are exceeded, use NIOSH approved dust respirator.

**Eye Protection:** Safety glasses

**Skin Protection:** Wear impermeable gloves, protective work clothing as necessary.

### 9 PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:**

**Form:** Solid in various forms

**Color:** Silvery metallic, high copper alloys will have a copper sheen

**Odor:** Odorless

**Odor Threshold:** Not determined

**pH:** N/A

**Melting Point:** No data

**Boiling Point:** No data

**Flash Point:** N/A

**Evaporation Rate:** N/A

**Flammability:** No data

**Upper Flammable Limit:** No data

**Lower Flammable Limit:** No data

**Vapor Pressure:** No data

**Vapor Density:** N/A

**Relative Density (Specific Gravity):** ~17-19 g/cc

**Solubility in H<sub>2</sub>O:** Insoluble

**Partition Coefficient (n-octanol/water):** Not determined

**Autoignition Temperature:** No data

**Decomposition Temperature:** No data

**Viscosity:** N/A

### 10 STABILITY AND REACTIVITY

**Reactivity:** No data

**Chemical Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** No data

**Conditions to Avoid:** Avoid creating or accumulating fines or dusts.

**Incompatible Materials:** Acids, oxidizers.

**Hazardous Decomposition Products:** Metal oxide fume.

### 11 TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure:** Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.

**Symptoms of Exposure:** Fines/dusts may irritate skin and eyes.

**Acute and Chronic Effects:**

Tungsten: No data

Nickel: The most common harmful health effect of metallic nickel in humans is an allergic skin reaction in those who are sensitive to nickel. Although nickel compounds are known human carcinogens, the evidence suggests that

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the relatively insoluble metallic nickel is less likely to present a carcinogenic hazard than are the nickel compounds that tend to release proportionately more nickel ion.

Iron: Irritating to the respiratory tract, iron compounds may cause pulmonary fibrosis if dusts are inhaled. Inhalation of large amounts may cause iron pneumoconiosis. Chronic inhalation of finely divided powder may cause chronic iron poisoning and pathological deposition of iron in the body tissue. Ingestion may cause vomiting, diarrhea, pink urine, black stool, and liver damage. Iron compounds may also cause damage to the kidneys.

**Acute Toxicity:** No data

**Carcinogenicity: Nickel: NTP:** R - reasonably anticipated to be a human carcinogen. **IARC:** 2B - possibly carcinogenic to humans

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

### 12 ECOLOGICAL INFORMATION

**Ecotoxicity:** No data

**Persistence and Degradability:** No data

**Bioaccumulative Potential:** No data

**Mobility in Soil:** No data

**Other Adverse Effects:** No further relevant information available.

### 13 DISPOSAL CONSIDERATIONS

**Waste Disposal Method:**

**Product:** Dispose of in accordance with Federal, State and Local regulations.

**Packaging:** Dispose of in accordance with Federal, State and Local regulations.

### 14 TRANSPORT INFORMATION

**Shipping Regulations:** Not regulated

**UN Number:** N/A

**UN Proper Shipping Name:** N/A

**Transport Hazard Class:** N/A

**Packing Group:** N/A

**Marine Pollutant:** No

### 15 REGULATORY INFORMATION

**TSCA Listed:** All components are listed.

**Regulation (EC) No 1272/2008 (CLP):** N/A

**Canada WHMIS Classification (CPR, SOR/88-66):** N/A

**HMIS Ratings: Health:** 0 **Flammability:** 0 **Reactivity:** 0

**NFPA Ratings: Health:** 0 **Flammability:** 0 **Reactivity:** 0

**Chemical Safety Assessment:** A chemical safety assessment has not been carried out.

### 16 OTHER INFORMATION

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct but does not purport to be all inclusive and shall be used only as a guide.

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**Prepared by:** Stanford Advanced Materials

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