

MATERIAL SAFETY DATA SHEET

I PRODUCT IDENTIFICATION

Trade Name:	Tungsten	Synonym:	Tungsten Metal Products
Chemical Nature:	Refractory Family	Formula:	W
CAS #:	7440-33-7	Molecular Weight:	183.85

II HAZARDOUS INGREDIENTS

TLV (Units): 96.5-100 % by Wt 5mg/m³ ACGIH TLV **Sec.302 (EHS):** No **Sec.304 RQ:** No **Sec.313:** No

III PHYSICAL DATA

Boiling Point 760 mm Hg:	5660 °C	Melting Point:	3390 to 3430 °C
Specific Gravity:	19.35	Vapor Density:	N/A
% Volatiles by Weight:	0	Solubility in H₂O:	Insoluble
Appearance and Odor:	Gray Metal/ No odor	How Best Monitored:	Air Sample

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point (Method used): N/A **Autoignition Temperature:** N/A
Flammable Limits: Upper: N/A **Lower:** N/A

Extinguishing Media: Tungsten rod, wire and fabricated products are not a fire hazard. Fine dust generated during grinding operations may ignite if allowed to accumulate and subjected to an ignition source. Cover burning material with an inert powder, such as dry sand or limestone, to exclude oxygen.

Special Fire Fighting Procedures: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire involving this material, firefighters should use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Dust may present a fire or explosion hazard under favoring conditions of particle size, dispersion and strong ignition source. However, this is not expected to be a problem under normal handling conditions.

V HEALTH HAZARD INFORMATION

Threshold Limit Value: 5 mg/m³

Health hazards (acute and chronic): To the best of our knowledge the chemical, physical and toxicological properties of tungsten metal have not been thoroughly investigated and recorded. Tungsten compounds: industrially, this element does not constitute an important health hazard. Exposure is related chiefly to the dust arising from the crushing and milling of the two chief ores of tungsten, namely scheelite and wolframite. Large overdoses cause central nervous system disturbances, diarrhea, respiratory failure and death in experimental animals (Sax, Dangerous Properties of Industrial Materials, eighth edition).

Inhalation: Acute: May cause irritation to the respiratory tract.
Chronic: No chronic health effects recorded.

Ingestion: Acute: No acute health effects recorded.
Chronic: Large overdoses may cause nervous system disturbances, and diarrhea.

Skin: Acute: May cause abrasive irritation.
Chronic: No chronic health effects recorded.

Eye: Acute: May cause abrasive irritation.
Chronic: No chronic health effects recorded.

Target Organs: May affect the respiratory and central nervous systems.
Medical Conditions Generally Aggravated by Exposure: Pre-existing respiratory disorders.

Effects of Over Exposure: Dust, mist and fumes generated during physical or metallurgical treatment may cause mild irritation of the nose and throat. With the exception of two Russian studies that found early signs of pulmonary fibrosis in some workers exposed to tungsten trioxide, tungsten metal and tungsten carbide, most studies have shown tungsten to be toxicologically inert. Skin and eye contact may cause irritation due to abrasive action of the dust. Current scientific evidence indicates no adverse effects are likely from accidental ingestion of small amounts of tungsten.

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove victim to fresh air, keep warm and quiet, give oxygen if breathing is difficult and seek medical attention if symptoms persist.

INGESTION: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention if symptoms persist. Never induce vomiting or give anything by mouth to an unconscious person.

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

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

VI REACTIVITY DATA

Stability: Stable

Incompatibility (Material to Avoid): Avoid contact of dust with strong oxidizers. Bromine pentafluoride, bromine, chlorine trifluoride, potassium perchlorate, potassium dichromate, nitryl fluoride, fluorine, oxygen difluoride, iodine pentafluoride, hydrogen sulfide, sodium peroxide, lead (IV) oxide, air.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur

VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Ventilate area of spill. Take care not to raise dust. Use non-sparking tools. Clean-up using methods which avoid dust generation such as vacuuming (with appropriate filter to prevent airborne dust levels which exceed the TLV), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Waste Disposal Method: Dispose of in accordance with local, state and federal regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Use an appropriate NIOSH approved respirator when airborne dust concentrations exceed the TLV. Appropriate requirements set forth in 29CF19110.134 should be met.

Ventilation: Use local exhaust ventilation which is adequate to limit personal exposure to levels which do not exceed the TLV. If such equipment is not available, use respirators as specified above.

Protective Gloves: Rubber gloves

Eye Protection: Safety Glasses

Other Protective Equipment: Protective gear suitable to prevent contamination.

Work/hygienic Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work areas. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

IX SPECIAL PRECAUTIONS

Other Handling and Storage Conditions: Maintain good housekeeping procedures to prevent accumulation of dust. Use clean-up methods which minimize dust generation such as vacuuming or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator. Wash thoroughly after handling and before eating or smoking and at the end of the work shift. Do not shake clothing or other items to remove dust. Use a vacuum. Avoid dust inhalation and direct skin contact. Do not ingest. Tungsten metal may ignite on contact with air. Handle and store in a controlled environment and inert gas such as argon.

Prepared by: S. Dierks

Dated: January 1991