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Certified AS9100 & ISO 14001

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: TUNGSTEN PRODUCTS

Revision July 16, 2008

SECTION 1: MANUFACTURER

Manufacturer's Name and Address: Elmet Technologies, Inc.
 1560 Lisbon Street
 Lewiston, Maine 04240

Emergency Telephone No.: 1-800-343-8008
Other Information Calls: 1-800-343-8008 _____

SECTION 2: HAZARDOUS INGREDIENTS

<u>Component(s)</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>PERCENTAGE</u>
Tungsten CAS No. 7440337	Not established	5mg/m ³	99-100%

Other possible ingredients

Lanthanum Oxide CAS No. 1312-81-8 (included in MoLa Products)	5 mg/m ³ (nuisance dust)	10 mg/m ³ (nuisance dust)	<1.0%
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Silicon CAS No. 7440-21-3 (included in HCT products)	5 mg/m ³ (nuisance dust)	10 mg/m ³ (nuisance dust)	trace
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Potassium CAS No. 7440-09-7 (included in HCT products)	5 mg/m ³ (nuisance dust)	Not Listed	trace
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SECTION 3: PHYSICAL DATA

Generic Description: Specialty metal; may be powder, wire, filament or fabricated metal parts.

Appearance and Odor: Silver-Grey to black in color. Odorless.

Boiling Point (deg C): 5927°C

Vapor Pressure (mmHg): 1 at 21°C

% Volatile (by volume): 0

Specific Gravity (H₂O=1): 19.3

Vapor Density (Air=1): Not Volatile

Evaporation Rate: Not volatile. Will sublime at high temperatures

Solubility in Water: Not water soluble.

Comments: This material has a very high density. Powder/dust will settle quickly.

SECTION 4: FIRE AND EXPLOSION DATA

Flashpoint: Not tested

Flammable Limits: Upper limit: Not tested Lower limit: Not tested

Explosive Limits: Upper limit: Not tested Lower limit: Not tested

Extinguishing Media: Dry chemical recommended

Special or unusual fire fighting procedures or hazards: Wear self contained breathing apparatus. After ignition source is removed, the metal will continue to glow until complete oxidation has occurred.

Use water spray, dry chemical foam or carbon dioxide.

Comments: Tungsten powder is a weak fire and explosion hazard depending on particulate size and dispersion in air. Fine dust is highly flammable when exposed to flame.

SECTION 5: REACTIVITY DATA

Stability: Stable

Conditions to avoid: Exposure to air

Incompatibility (Materials to avoid): Halogens, nitric and sulfuric acids; oxidants

Hazardous Decomposition Products: Will form trioxide when heated in air and sublime at extremely high temperatures above 800 °C

Hazardous Polymerization: Will not occur

SECTION 6: HEALTH HAZARD AND FIRST AID PROCEDURES

Acute Health Effects: Tungsten is considered to have a low order of toxicity.

Inhalation: Dust may cause irritation

Eyes: Dust may cause irritation

Chronic Health Effects: Excessive long term exposure to dust may cause pulmonary dysfunction. Tungsten carbide may cause skin dermatitis.

Components Listed as Carcinogen or Potential Carcinogen: None listed by NTP. OSHA or IARC Monographs

SECTION 7: SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill/Leak: Notify safety personnel, eliminate sources of ignition, provide adequate ventilation, and do not create a dust cloud during cleanup operations. Cleanup personnel need protection against contact with and inhalation of dust (see sect. 8). Carefully scoop, shovel, or vacuum up the spilled material and place it into suitable containers. No special procedures are needed for spills of solid or bulk tungsten.

Waste Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Consider reclamation or recycling. Follow federal, state, and local regulations.

OSHA Designations

Air contaminant (29 CFR 1910.1000 Subpart Z): Not listed

EPA Designations (40 CFR 302.4): Not listed

SECTION 8: CONTROL MEASURES

Goggles: Always wear protective eyeglasses or chemical safety goggles. Follow OSHA eye and face protection regulations (29 CFR 1910.133).

Respirator: Follow OSHA respirator regulations (29 CFR 1910.134) Wear a respirator approved by NIOSH if the airborne concentration of tungsten compounds exceed the exposure limits cited in Section 2.

Warning: Air-purifying respirators will not protect workers in oxygen deficient atmospheres.

Other: Wear impervious gloves, boots, aprons, etc., as required by the work environment to protect skin contact with tungsten compounds. Barrier creams may be useful in limiting the effects of skin contact.

Ventilation: Install and operate general and local maximum explosion- proof ventilation systems that are powerful enough to maintain airborne levels of tungsten compounds below the exposure limits cited in Section 2.

Safety Stations: Make eyewash stations, washing facilities, and safety showers available in areas of use and handling.

Contaminated Equipment: Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. Particles can adhere to contact lenses and cause corneal damage. Do not wear contact lenses in any work area.

Comments: Practice good personal hygiene; always wash thoroughly after using this material. Avoid transferring it from your hands to your mouth while eating, drinking, or smoking. Do not eat, drink, or smoke in any work area.

SECTION 9: SPECIAL PRECAUTIONS AND COMMENTS

Storage/Segregation: Store tungsten in cool, dry, well-ventilated area in tightly closed containers away from sources of ignition and incompatible chemicals (see sect 5).

Special Handling/Storage: Build all storage facilities with an explosion-relief to minimize damage from accidental tungsten dust cloud explosions.
Ground and bond all metal containers used in shipping, producing, or transferring operations to prevent static sparks that could ignite a dust cloud of finely divided tungsten particles.

Transportation Data (49 CFR 172.101-2): Not listed by road. Check with carrier for air restrictions as possible flammable solid, inorganic n.o.s. (if fine powder).