

Tungsten Heavy Powder, Inc.

MATERIAL SAFETY DATA SHEET

Part No.: WC-01/A

PRODUCT NAME: Tungsten Carbide with Cobalt Powder

SECTION 1 - MANUFACTURER IDENTIFICATION

MANUFACTURER'S NAME: Tungsten Heavy Powder, Inc.

ADDRESS: 9090 Kenamar Drive, San Diego, CA, 92121

INFORMATION PHONE: 858-693-6100

EMERGENCY CONTACT: (CHEMTREC): 800-424-9300

DATE: March 29, 2006

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Component	Cas No.	Typical Wt. %	OSHA-PEL (mg/m ³ /10)	ACGIH TLV (mg/m ³ /10)	RTECS #
Tungsten Carbide	12070-12-1	70-98%	5 STEL (W)	5 STEL (W)	Y07250000
Cobalt	7440-48-4	2-30%	0.1 AS (CO)	0.5 DUST 9293	GF8750000

SECTION 3 - PHYSICAL AND CHEMICAL DATA

Appearance: Dark Grey Metal Powder

Odor: No odor

Boiling Point: 5198° F / 2870° C

Vapor Pressure: <1mm

% Volatiles by Weight: 0

Specific Gravity (H₂O = 1): 12-16

Water Solubility: Insoluble

Melting Point: 2723° F / 1495 °C

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Non-Flammable

Method Used: N/A

Autoignition Temperature: N/A

Flammable Limits: Upper: N/A, Lower: N/A

Extinguishing Media: Class D, Sand, Dolomite, Sodium Chloride and Soda Ash

Fire Fighting Procedures: For a fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire involving this material, firefighters must wear self-contained breathing apparatus. Careful to avoid blowing of powder with extinguishers.

SECTION 5 - HEALTH HAZARD DATA

Threshold Limit Value: Cobalt 20 mg/m³

Reports of Carcinogenicity: NTP-No, IARC-No, OSHA-No

Skin Exposure: May cause irritation. No skin route of entry.

Skin First Aid: Remove contaminated clothing, brush material off skin, wash affected area well with soap and water. Launder well before use. Seek medical attention if symptoms persist.

Eye Exposure: May cause irritation.

Eye First Aid: Flush eyes with clean, lukewarm water for 15 minutes. Obtain medical attention if irritation develops. Seek medical attention if symptoms persist.

Inhalation: Acute: May cause irritation to the respiratory Tract.

Inhalation: Chronic: No chronic health effects recorded.

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

Ingestion: Acute: No chronic health effects recorded

Ingestion: Chronic: Large overdoses may cause nervous system disturbances, and diarrhea.

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

PRODUCT NAME: Tungsten Carbide with Cobalt Powder

SECTION 5 – HEALTH HAZARD DATA (Continued)

Medical Conditions Generally Aggravated By Long Term Exposure: Pre-existing respiratory disorders.

Health Hazards: To the best of our knowledge the chemical physical and toxicological properties of tungsten metal have not been thoroughly recorded.

SECTION 6 – 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. 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.

SECTION 7 – SPECIAL PROTECTION INFORMATION

Ventilation/Respiratory Protection: Use an appropriate NIOSH approved respirator when airborne dust concentrations exceed the TLV. See (29CFR 1910.134).

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.

Skin Protective: Rubber gloves should be worn.

Eye Protection: Safety goggles or glasses are recommended.

SECTION 8 – HANDLING AND STORAGE

Handling Precautions and Storage Requirements: Maintain good housekeeping procedures to avoid 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 respirators. 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. For better results, store in a controlled environment and inert gas such as argon.

SECTION 9 - STABILITY AND REACTIVITY

Stability: Stable.

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

Hazardous Polymerization: Will not occur.

Hazardous Decomposition: None

Waste Disposal Method: Reclaim; remove to waste disposal facility operating in compliance with federal, state, or local environmental control regulations.

SECTION 10 – REGULATORY INFORMATION

EPA Regulations:

RCRA Hazardous waste number: Not listed

SARA/TitleIII categories: Under applicable definitions, this material may meet the criteria for delayed (chronic) health hazard category.

SARA 313 Information: Tungsten is not subject to the reporting requirements of section 313 of Title III of the superfund amendments and Reauthorization act (SARA) of 1986 and 40 CFR Part 372.

DOT: Not regulated

TSCA: This material is registered under the regulation of the Toxic Substance Control Act

Canadian DSL Inventory: Listed

SECTION 11 – OTHER INFORMATION

Reason for Issue: New

Prepared by: J. Sery

Approved Date: March 29, 2006

Supersedes Date: N/A

Disclaimer: This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Tungsten Heavy Powder, Inc. The data on this sheet relates only to the specific material designated herein. Tungsten Heavy Powder, Inc. assumes no legal responsibility for use or reliance upon these data.