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## MSDS: TUNGSTEN CARBIDE POWDER

### CHEMICAL

#### IDENTIFICATION:

Name: Tungsten Carbide Powder  
Synonyms: WC  
CAS#: Tungsten Carbide (12070-12-1)

### COMPOSITION/INFORMATION

#### ON INGREDIENTS:

Chemical Family: Refractory Metal Alloy  
Chemical Formula: WC

Material	%	OSHA TWA	ACGIH TWA	ACGIH STEL
Tungsten	>99	5 (insoluble)	5 (insoluble)	10 (insoluble)
Carbide		1 (soluble)	1 (soluble)	3 (soluble)

*(all exposure limits in mg/m<sup>3</sup> values for airborne Tungsten powder and dust)*

### HAZARDS

#### IDENTIFICATION:

The terms "hazardous" and "hazardous materials" as used within this MSDS should be interpreted as by, and in accordance with, the OSHA Hazard Communication Standard (29CFR1910.1200) including cited appendices, lists, references, etc.

Primary routes of entry: Inhalation, ingestion, skin or eye contact  
(for dusts, mists, powder and fume)

Effects of overexposure: Industrially Tungsten does not constitute an important health hazard. Exposure is related chiefly to the dust arising out of the crushing and milling operations. Chronic inhalation of the dust may cause lung damage in humans.

Carcinogenic assessment: Not listed

**FIRST-AID MEASURES:** (for dusts, mists and fume)

*Eye contact:* If irritation occurs, flush with large amounts of water for at least 15 minutes. If irritation persists, seek medical attention.

*Skin contact:* Wash with soap and water. If irritation or rash occurs, isolate from exposure. If rash persists, seek medical attention.

*Inhalation:* If large amounts of dust are inhaled, move the exposed person to fresh air. If necessary, perform artificial respiration and seek medical attention.

*Ingestion:* If ingested, get medical attention. Give large quantities of water and induce vomiting. DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT.

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**FIRE FIGHTING MEASURES:**

*Extinguishing media:* Use Class D fire extinguishing agents (dry powder).

*Special procedures:* For a powder fire confined to a small area—use a respirator approved for toxic dusts and mists. For a large fire - use self contained breathing apparatus.

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

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**ACCIDENTAL RELEASE MEASURES:**

If material is released or spilled, ventilate the area of the spill. Clean up using methods which avoid the generation of dusts. Such methods include wet mopping or vacuuming (assuring that the vacuum is equipped with the proper filter to prevent airborne dust levels which exceed the PEL or TLV). If airborne dust is generated, use the appropriate NIOSH approved respiratory protection.

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**HANDLING AND STORAGE:**

Tungsten carbide products are, in general, safe materials to handle and use under almost all commonly encountered environments. Special precautions should be observed in order to minimize the dust created. The generation of dust or mists may present a health hazard if the exposure limits, as described above, are exceeded. Maintain good housekeeping procedures to prevent the accumulation of dust and the generation of airborne dust particles. Avoid dust inhalation and direct skin contact with the dust. Wash hands thoroughly before eating or smoking. Wash exposed skin at the end of the work shift.

**Respiratory protection:** Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or TLV. All requirements set forth in 29CFR1910.134 must be met.

**Protective gloves:** Protective gloves or barrier creams are recommended when contact with dust or mist is likely. Wash thoroughly prior to applying barrier creams or using protective gloves.

**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.

**Eye protection:** Safety glasses with side shields or goggles are recommended.

**Other equipment:** None under normal operating and handling conditions.

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**PHYSICAL AND CHEMICAL**

<b>PROPERTIES:</b>	Melting point:	2780°C
	Boiling point:	6000°C
	Vapor pressure:	n/a @ 250C
	Vapor density:	(air=1) n/a
	Evaporation rate:	n/a
	Solubility in water:	insoluble
	Specific gravity:	(H <sub>2</sub> O=1) 15.6
	Molecular weight	195.86
	% volatile by vol.:	n/a
	Appearance:	Gray to black powder
	Odor:	none

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**STABILITY AND REACTIVITY:**

Incompatibilities: Contact of dust with strong oxidizers may cause fire or explosion. Avoid strong acids. Extremely fine powders may be pyrophoric under some conditions. Violent reaction with F<sub>2</sub>; ClF<sub>3</sub>; NO<sub>x</sub>; IF<sub>5</sub>; PbO<sub>2</sub>; NO<sub>2</sub>; and N<sub>2</sub>O.

Stability: WC is stable under normal operating conditions.

Hazardous decomposition products: None

Hazardous polymerization: Will not occur

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**TOXICOLOGICAL INFORMATION:**

Tungsten 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.

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**DISPOSAL CONSIDERATIONS:**

This material must be disposed of in accordance with any and all applicable local, state and federal regulations. Material intended for disposal may be sold as scrap for reclaim.

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**TRANSPORT INFORMATION:**

Certain particle size powders may be classed as Class 4, Division 4.1, Flammable Solid.

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