

MATERIAL SAFETY DATA SHEET  
**LEECH CARBIDE**  
 BOX 539, MEADVILLE, PA 16335  
 814-724-5454

**CHEMICAL NAME:** Cemented Tungsten Carbide Product with Cobalt Binder

**TRADE NAME AND SYNONYMS:** All LEECH CARBIDE Tungsten Carbide Grades

**CHEMICAL FAMILY:** Refractory Metal Carbide **MOLECULAR WEIGHT:** Varies with grade

PHYSICAL DATA

<b>Appearance and Odor:</b>	Dark Gray Metal/ No Odor	<b>Specific Gravity (H<sub>2</sub>O=1):</b>	11.0 to 15.5
<b>Boiling Points:</b>	N/A	<b>Percent Volatile by Volume:</b>	0
<b>Vapor Pressure:</b>	N/A	<b>Evaporation Rate:</b>	N/A
<b>Vapor Density:</b>	N/A	<b>How Best Monitored:</b>	Air Sample
<b>Solubility in Water:</b>	Insoluble		

HAZARDOUS INGREDIENTS

Material	Percent by Weight *	OSHA PEL (Unit)	ACGIH TLV (Unit)
Tungsten Carbide (Limits for Tungsten Dust)	67 - 97%	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Cobalt	3 - 25%	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Tantalum Carbide (Limits for Tantalum Dust)	0.0 - 50%	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>

\* Depends on grade specifications

HEALTH HAZARD DATA

**Routes of Exposure:** Exposure to hazardous ingredients may occur if the hard cemented tungsten carbide product is subjected to grinding operations which generate respirable dust.

**Effects of Exposure:**

**Inhalation** Excessive inhalation of respirable dust of cemented tungsten carbide dust mixtures containing cobalt, tantalum carbide, chromium carbide or chromium has the potential for causing nose and throat irritation and transient or permanent respiratory disease. The disease has been attributed primarily to cobalt and has features of hypersensitivity. Symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Prolonged excessive exposure may lead to pulmonary fibrosis, permanent disability or death.

**Skin Contact** Can cause irritation or an allergic skin rash due to chromium, cobalt, or nickel sensitization in people susceptible to allergic reactions.

**Eye Contact** Can cause irritation or conjunctivitis.

**Ingestion** Ingestion of large amounts of cobalt over a period of time has the potential for causing blood, heart and other organ problems. Current scientific information indicates no adverse effects are likely from ingestion of small amounts of dust generated from these products.

**Emergency and First Aid Procedures:**

**Inhalation** If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.), remove from exposure and seek medical attention.

**Skin Contact** If irritation or rash occurs thoroughly wash affected area with soap and water and isolate from exposure. If irritation or rash persists, seek medical attention.

**Eye Contact** If irritation occurs, flush with copious amounts of water. If irritation persists, seek medical attention.

**Ingestion** If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting and seek medical attention.

**Carcinogenic Assessment:** The National Toxicology Program (NTP) found there was sufficient evidence of carcinogenicity of nickel in experimental animals and limited evidence for the carcinogenicity of nickel in humans. The International Agency for Research on Cancer (IARC) found there was inadequate evidence that metallic cobalt and metallic nickel are carcinogenic to humans, but since there was sufficient evidence that they are carcinogenic to animals, IARC concluded that metallic cobalt and metallic nickel are possibly carcinogenic to humans. IARC and NTP found there was inadequate data for the carcinogenicity of chromium and trivalent chromium compounds. Cobalt has not been classified as a known or suspected carcinogen by NTP or OSHA. Nickel and chromium have not been classified as a known or suspected carcinogen by OSHA.

FIRE AND EXPLOSION HAZARD DATA

**Flash Points:** N/A **Test Method Used:** -- **Flammable Limits:** N/A

Hard Cemented Tungsten Carbide Product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate, and are subjected to an ignition source.

**Extinguishing Media:** For powder fires use dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.

**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, fire fighters should use self-contained breathing apparatus.

**Unusual Fire and Explosion Hazards:** 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.

REACTIVITY DATA

**Stability:** Unstable  
 Stable X

**Incompatibility:** Contact of dust with strong oxidizers may cause fire or explosions.

**Materials to Avoid:** Strong acids and oxidizers.

**Hazardous Decomposition Products:** Thermal decomposition may release tungsten carbide, cobalt, and nickel metallic oxides.

**Hazardous Polymerization:** May Occur  
 Will Not Occur X

**Conditions to Avoid:** N/A

SPILL OR LEAK PROCEDURES

**Steps to be Taken in Case Material is Released or Spilled:** Ventilate area of spill. Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed OSHA permissible exposure levels) 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 appropriate government regulations. May be sold as scrap for reclaim.

SPECIAL PROTECTION INFORMATION

**Respiratory Protection:** Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate OSHA permissible exposure levels. All appropriate requirements set forth in 29 CFR 1910.13 should be met.

**Ventilation:** Use local exhaust ventilation which is adequate to limit personal exposure to respirable airborne dust to levels which do not exceed OSHA permissible limits. If such equipment is not available, use respirators as specified above.

**Protective Gloves:** Protective gloves or barrier cream are recommended when contact with dust or mist is likely. Prior to applying the barrier cream or use of protective gloves, wash thoroughly.

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

**Other Protective Equipment:** N/A

SPECIAL PRECAUTIONS

**Precautions to be Taken in Handling and Storage:** Maintain good housekeeping procedures to prevent dust accumulation during grinding. Avoid dust inhalation and direct skin contact with dust.

**Other Precautions:** Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed OSHA permissible exposure levels), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Wash thoroughly before eating or smoking. Wash exposed skin and remove soiled clothing at end of work shift. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming (with appropriate filters) the clothing, rags or other items.

**Warning Label for Cemented Carbide Products:**

CEMENTED CARBIDE PRODUCT

Contains one or more of the following substances: Tungsten Carbide, Cobalt, Tantalum Carbide, Chromium Carbide, Chromium, Nickel, Molybdenum Carbide, Molybdenum, or Vanadium Carbide.

Read Material Safety Data Sheet for applicable carbide grade before use.

**Warning:**

- Respirable dust generated in grinding this product may cause irritation of the respiratory system and nose, throat and lung problems. May also cause skin problems. Coolant mist from wet grinding may contain dust.
- Avoid breathing dust or mist.
- Avoid prolonged skin contact with dust or mist.
- Use adequate ventilation when grinding.
- Maintain dust level below OSHA and ACGIH levels.
- Use protective devices.
- Wash hands before eating or smoking
- Dispose of materials according to local, state and/or federal regulations.

**Note:** Label drafted broadly to cover most, if not all, cemented carbide products. Only those substances which have been reported to be hazardous are listed. This list may not be the same for all companies as grades will vary in composition. Since the label directs the user to read the MSDS the following rules for listing substances apply: Hazardous substances must be listed if there is 1.0% or more (by weight or volume) in the product, except for known or suspected carcinogens (such as nickel) in which case the substance must be listed if there is 0.1% or more in the product. Therefore, substances that might ordinarily be considered a trace element or an impurity must be listed where carcinogens are involved.

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In case of questions please call:

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