



11040 Parker Drive
W.C.I.D.C IV
Irwin, PA
Phone 1-800-544-4338
Fax: 412-751-4824

SAFETY DATA SHEET

Section 1: Identification

Product Name: Tungsten Carbide

Also known as; Sintered Tungsten Carbide, Cemented Tungsten Carbide, Carbide Hard Metal and WC

Chemical Name: Cemented Tungsten Carbide Product with Cobalt Binder

Trade Name: All Innovative Carbide, LLC. /IC Tungsten Carbide Grades

Chemical Symbol: WC

Chemical Family: Refractory Metal Carbide **Molecular Weight:** N/A

Section 2: Hazard(s) Identification

Signal Word: DANGER



Routes of Exposure:

Grinding cemented tungsten carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with skin or eyes.

Effects of Overexposure:

Inhalation: Dust from grinding can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis, in a small percentage of exposed individuals. It is reported the cobalt dust is the most probable cause of such respiratory diseases; symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death.

Skin Contact: Can cause irritation or an allergic skin rash due to Cobalt Sensitation.

Eye Contact: Can cause irritation.

Ingestion: Reports outside the industry suggests that ingestion of significant amounts of cobalt has the potential for causing blood, heart and other organ problems.

Section 3: Composition/Information on Ingredients

Material	CAS #	Percent by Weight	OSHA PEL	ACGIH TLV
Tungsten Carbide (<i>limit for Tungsten Dust</i>)	12070-12-1	70-97%	5 mg/m ³	5mg/m ³
Cobalt	7440-48-4	3-25%	.1 mg/m ³	.02 mg/m ³
Tungsten Carbide (<i>limit for Tantalum Dust</i>)	12070-06-3	0-5%	5 mg/m ³	5 mg/m ³

*Depends on grade specifications

Section 4: First-Aid Measures

Emergency and First Aid Procedures: Applicable for dusts and mists.

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.

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

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

Section 5: Fire-Fighting Measures

Flash Point: N/A **Test Method Used:** -- **Flammable Limits:** N/A **LEL:** -- **UEL:** --

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

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

Special Fire Fighting Procedures: For 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.

Section 6: Accidental Release Measures

Steps to be Taken In Case Material is Released or Spilled: Ventilate area of the spill. Clean up using methods which avoid dust generation such as vacuum (with appropriate filters to prevent airborne dust levels which exceed the PEL or TVL), Wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Section 7: Handling and Storage

Precautions to be taken in Handling and Storage: Maintain good housekeeping procedures to prevent dust accumulation during grinding. Avoid inhalation and direct skin contact with dust or mist. Keep containers closed when not in use.

Other Precautions: Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed to PEL or TVL), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator. Wash hands thoroughly after handling, before eating, drinking or smoking. Wash exposed skin at the 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.

Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.

Section 8: Exposure Controls/Personal Protection

Respiratory Protection: Use an appropriate NIOSH approved respirator particularly if airborne dust concentrations exceed the appropriate PEL or TLV. All appropriate requirement set forth in 29 CFR 1910.134 should be met.

Ventilation: Use local exhaust ventilation which is adequate to limit personal exposure to airborne dust levels which do not exceed the PEL or TLV. 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 likely. Prior to applying the barrier cream or using gloves, wash thoroughly.

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

Other Protective Equipment: N/A

Section 9: Physical and Chemical Properties

Physical State: Solid

Appearance and Odor: Dark Gray Metal/No Odor

Boiling Point: N/A

Specific Gravity (H₂O=1): 13.0 to 15.6 g/cm³

Vapor Pressure (mm Hg): N/A

Percent Volatile by Volume: 0

Vapor Density (Air=1): N/A

How Best Monitored: Air Sample

Solubility in Water: Insoluble

Flash Point: N/A

Test Method Used: --

Flammable Limits: N/A

LEL: --

UEL: --

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: N/A

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

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not Occur

Conditions to Avoid: N/A

Section 11: Toxicological Information

The sintered, solid form of Tungsten Carbide with Cobalt binder is not considered to be toxic; however the individual component Cobalt, which may be separated in dust form from the solid material by grinding, is listed as a Category 2B carcinogen (possibly carcinogenic to humans).

Section 12: Ecological Information

Although there is no specific eco-toxicity data available, it is not expected that this product, especially in the solid or sintered form, would be a hazard to the environment.

Section 13: Disposal Considerations

Waste Disposal Method: Dispose of in accordance with appropriate government regulations. May be sold as scrap for reclaim.

Section 14: Transport Information

The solid form of Tungsten Carbide is safe and therefore its transport is not regulated in Canada or the United States. No Hazard Class signage or other special labeling is required.

Section 15: Regulatory Information

Tungsten Carbide and Cobalt are chemical substances subject to supplier notification.

United States: Cobalt is subject to the requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372 (Toxic Chemical Release Reporting).

Cobalt

CAS# 7440-48-7

20% maximum

California Proposition 65: WARNING: This product contains chemicals known to the State of California to cause cancer.

Canada: The Canadian Workplace Hazardous Materials Information System (WHMIS) classification for Cobalt is D2B. Cemented Tungsten Carbide Product itself is not a controlled product and meets the definition of a 'manufactured article' under the WHMIS regulations.

Section 16: Other Information

In case of questions, please call: Vice President of Administration

Company Name: Innovative Carbide, LLC

Issue Date: May 1, 2015

Telephone: 412-751-6900

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