

MATERIAL SAFETY DATA SHEET MANUAL	Effective Date: August 24, 1998	No. MSDS-1 Issue 1 Rev. 0 Page 1 of 4	Glen Carbide, Inc.
Title: Cemented Carbide Product with Cobalt Binder			
Prepared By: John Moessner		Approved By: JRM	

MATERIAL SAFETY DATA SHEET

Chemical Name: Cemented Carbide Product with Cobalt Binder

Trade Name and Synonyms: All Tungsten Carbide Grades

Chemical Family: Refractory Metal Carbide

PHYSICAL DATA

Physical State:	Solid	pH:	N/A
Boiling Point:	N/A	Specific Gravity: (H2O=1)	11.0 to 15.5
Freezing Point:	N/A	Odor Threshold:	N/A
Vapor Pressure:	N/A	Percent Volatile by Volume:	0
Vapor Density (Air=1):	N/A	How Best Monitored:	Air Sample
Solubility in water:	Insoluble	Coefficient of Water/ Oil Distribution:	Not Established

HAZARDOUS INGREDIENTS

EXPOSURE LIMITS

	Percent by weight*	ACGIH	OSHA TWA**	OSHA STEL***
Tungsten Carbide (limits for tungsten dust) (12070-12-1)	50-97%	5 mg/m3	5 mg/m3	10mg/m3
Cobalt Metal dust and fume (as Co.) (7440-48-4)	0-30%	.02 mg/m3	.05 mg/m3	-----

*Depends on grade specifications

**TWA (Time Weighted Average) is an employee's average airborne exposure in any 8-hour work shift of a 40-hour week.

***STEL (Short Term Exposure Level) is an employee's 15-minute weighted average exposure at any time during a work day.

This product contains cobalt which is subject to the requirements of section 313 of Title III and the Emergency Planning and Community Right-to-Know Act of 1986 and 40 CFR Part 372. This product may be subject to the applicable provision of state laws, such as, the Pennsylvania Worker and Community Right-to-Know Act.

Steel Support material may pose potential hazards under certain conditions - see applicable Material Safety Data Sheet. Cadmium and/or Nickel may be present in Brazed Tools - see applicable Material Safety Data Sheet.

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HEALTH HAZARD DATA

Routes of Exposure:

Skin Contact Skin Absorption Eye Contact Acute Inhalation Chronic Inhalation Ingestion

Grinding and machining or other finishing methods for cemented carbide products will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the skin or eyes.

Effects of Overexposure:

Carcinogenicity: NTP IARC Other (see below).
 Sensitization: Reproductive Toxicity Teratogenicity
 Mutagenicity

Inhalation: Dust from grinding and machining or other finishing methods 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 that 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 sensitization.

Eye Contact: Can cause irritation.

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

Carcinogenicity: IARC found there was inadequate evidence that metallic cobalt is carcinogenic to humans, but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic cobalt is possibly carcinogenic to humans. The ACGIH has designated cobalt as an animal carcinogen, i.e. the agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), or histologic type(s), or by mechanism(s) that are not considered relevant to worker exposure with available evidence suggesting the agent is not likely to cause cancer in humans except under uncommon or unlikely routes of exposure. Cobalt has not been classified as a known or suspected carcinogen by NTP, NIOSH, OR OSHA.

Synergistic Materials: The lung toxicities of cobalt and other ingredients of cemented tungsten carbide have been reported to be greater together than when administered separately.

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.

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Eye Contact: If irritation occurs, flush 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.

FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A Test Method Used: _____ LEL: _____ UEL: _____
Auto Ignition Temperature: N/A

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

Conditions to Avoid: N/A

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

Materials to Avoid: Strong Acids or Oxidizers

Hazardous Decomposition Products:
None

Conditions to Avoid: N/A

Hazardous Polymerization:
May Occur
Will Not Occur

SPILL OR LEAK PROCEDURES

Steps to be taken 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 to TWA STEL), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

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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 particularly if airborne dust concentrations exceed the appropriate TWA or STEL. All appropriate requirements set forth in 29 C.F.R. 1910.134 should be met. For proper selection of respirators, see also American National Standard Practices for Respiratory Protection Z88.2-1969.

Ventilation: Use local exhaust ventilation which is adequate to limit personal exposure to airborne dust to levels which do not exceed the TWA or STEL. 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 globes, wash thoroughly.

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

Periodic Medical Examinations: It has been suggested by OSHA that literature suggests possible adverse side effects of exposure to cobalt below the TWA or STEL. Accordingly, periodic medical examinations are recommended for individuals regularly exposed to dust or mist.

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.

Wash hands thoroughly after handling, before eating 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.

In case of questions please call:

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