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GENERALCARBIDE.

MATERIAL SAFETY DATA SHEET

MATERIAL NAME: Cemented Carbide Products with Cobalt, Nickel, Nickel-Cobalt, Nickel-Cobalt Chromium Binder.

PRODUCT USE: Die and Wear Parts

PRODUCT IDENTIFIER: All General Carbide Corporation Grades containing Cobalt, Nickel, Nickel-Cobalt-Chromium

CHEMICAL FAMILY: Refractory Metal Carbide

HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS (CAS REGISTRY NO.)	APPROXIMATE CONCENTRATION BY WEIGHT	EXPOSURE LIMITS ACGIH	U.S. OSHA **TWA**	U.S. OSHA **STEL**
Tungsten Carbide (limits for tungsten dust) (12070-12-1)	50-97% *	5 mg/m^3	5 mg/m^3	10 mg/m^3
Nickel (7440-02-0)	0-25% *	1 mg/m^3	1 mg/m^3	----------
Cobalt Metal Dust and fume (as Co.) (7440-48-4)	0-30% *	.02 mg/m^3 A3**	.1 mg/m^3 ***	----------
Tantalum Carbide (limits for tantalum dust) (12070-06-3)	0-22% *	5 mg/m^3	5 mg/m^3	----------
Chromium Carbide (limits for Chromium (+3)dust) (7440-47-3)	0-5% *	.5 mg/m^3	1 mg/m^3	----------
Molybdenum (7439-98-7)	0-5% *	10 mg/m^3	10 mg/m^3	----------

* Depends on grade specifications
** A3 - ACGIH - Animal carcinogen
*** .05mg/m^3 Prior to court decision

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 time weighted average exposure at any time during a work day.

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PHYSICAL DATA

Appearance and Odor: Dark Gray; Solid Metal; No Odor; No Odor Threshold

Boiling Point:	Not Applicable	Specific Gravity (H_20=1): 11.0 to 15.5
Vapor Pressure (mm/hg):	Not Applicable	Percent Volatile by Volume: 0
Vapor Density (Air=1):	Not Applicable	Evaporation Rate: Not Applicable
Solubility in Water:	Insoluble	How Best Monitored: Air Sample
Freezing Point:	Not Applicable	Ph: Not Applicable
Coefficient of water/oil distribution:	Not Applicable	

FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method of Determination: Not Applicable

Upper Flammable Limit: Not Applicable
Lower Flammable Limit: Not Applicable
Auto Ignition Temperature: Not Applicable

Hazardous Combustion Products/Conditions of Flammability: 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, smoother with dry sand, dry dolomite, ABC 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 a self-contained breathing apparatus.

Explosion Data - Sensitivity to Mechanical Impact: Not Applicable

Explosion Data - Sensitivity to Static Discharge: Not Applicable

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

Conditions Under Which Product Is Unstable: Not Applicable

Incompatibility/Conditions of Reactivity: Contact of dust with strong oxidizers may cause fire or explosions. Avoid contact with strong acids.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will Not Occur

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TOXICOLOGICAL PROPERTIES

Routes of Entry: Inhalation acute; inhalation chronic; ingestion; skin contact; eye contact.

Effects of Acute or Chronic Exposure, Irritancy and Sensitization:

Inhalation: Dust from grinding can cause irritation of the nose and throat. In some cases, it also has the potential for causing or aggravating transient or permanent respiratory or pulmonary disease, including occupational asthma, pulmonary fibrosis, and interstitial pneumonitis. It is reported that cobalt indicated a lack of correlation between onset of symptoms, length of exposure and the development of interstitial fibrosis. Symptoms may include productive coughing, wheezing, shortness of breath, chest tightness, weight loss, a high incidence of minor or marked radiological abnormalities, and the development of hypersensitivity asthma in some people. Respiratory or pulmonary disease is progressive and can lead to permanent disability or death.

Ingestion: It has been suggested that ingestion of significant amounts of cobalt 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 nickel dust generated from these products.

Skin Contact: May cause irritation or an allergic skin rash due to cobalt sensitization. It has been reported that an allergic dermatitis has been caused by contact with cobalt and its compounds. Certain skin conditions, such as dry skin, may be aggravated by exposure.

Eye Contact: Can cause Irritation.

Carcinogenicity: Nickel has been identified as a confirmed human carcinogen section A1 of Appendix A of Threshold Limit Values and Biological Exposure Indices published by ACGIH. The ACGIH has identified cobalt metal as an animal carcinogen. Other sources indicated that cobalt metal is a suspected or confirmed carcinogen.

Reproduction Toxicity: Not Applicable Mutagenicity: Not Applicable

Teratogenicity: Not Applicable

PREVENTATIVE MEASURES

Personal Protection Equipment and Specific Engineering Controls:

Respiratory Protection: Use an appropriate, NIOSH approved respirator if airborne dust concentrations exceed the applicable exposure limits. For proper selection of respirators, see also American National Standard Practices for Respiratory Protection Z88.2-1969.

Ventilation: Use local ventilation which is adequate to limit personal exposure to airborne dust levels which do not exceed the applicable exposure limits. If such equipment is not available use respirators as specified above.

Gloves, Barrier Cream: Protective gloves or barrier creams 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.

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Periodic Medical Examinations: It has been noted by the U.S. Occupational Safety and Health Administration that literature suggest possible adverse effects of exposure to cobalt below the permitted exposure limits. Accordingly, periodic medical examinations are recommended for individuals regularly exposed.

Spill or Leak Procedures: Ventilate area or spill. Clean up using methods which avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed exposure limits), wet mop or wet clean-up. If airborne dust is generated, use an appropriate approved respirator.

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

Other Precautions: Wash hands thoroughly after handling and 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.

FIRST AID MEASURES

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

Ingestion: If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting 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.

PREPARATION INFORMATION

In case of questions please call:

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