

MATERIAL SAFETY DATA SHEET

CHEMICAL NAME: Cemented Carbide Product with Cobalt binder

TRADE NAME & SYNONYMS: All Garr Tool Carbide Grades

CHEMICAL FAMILY: Refractory Metal Carbide

MOLECULAR WT.: Varies with grade

PHYSICAL DATA

Appearance and Odor: Dark Gray Metal/No Odor Specific Gravity (H₂O = 1): 10.0 to 15.5

Boiling Point: N/A Percent Volatile by Volume: 0

Vapor Pressure (mm Hg): N/A Evaporation rate: N/A

Vapor Density (Air = 1): N/A How Best Monitored: Air sample

Solubility in Water: Insoluble Physical State: Solid

Freezing Point: N/A pH: N/A

Odor Threshold: N/A

HAZARDOUS INGREDIENTS

Material	Percent by Weight	OSHA PEL	ACGIH TLV
Tungsten Carbide†	41.0-99%*	5 mg/m ³	5 mg/m ³
Cobalt	1.5-30%*	0.05 mg/m ³	0.05 mg/m ³
Tantalum Carbide†	0.0-52%*	5 mg/m ³	5 mg/m ³
Chromium Carbide†	0.0-5.1%*	0.5 mg/m ³	0.5 mg/m ³
Titanium Carbide	0.0-15%*	10 mg/m ³	10 mg/m ³
Vanadium Carbide	0.1-0.5%*	0.05 mg/m ³	0.05 mg/m ³
Molybdenum	0.0-5%*	10 mg/m ³	10 mg/m ³
Nickel	1.0-30%*	1 mg/m ³	1 mg/m ³

*Depends on grade specifications

†Limits for Tungsten/Tantalum/Chromium dust

HEALTH HAZARD DATA

Routes of Exposure: Skin contact, eye contact, acute inhalation, chronic inhalation, ingestion.

Effects of exposure: Carcinogenicity by NTP or IARC; Sensitization.

Inhalation: Dusts or mists can cause irritation of the nose and throat. Inhalation can result in an allergic reaction in individuals previously sensitized, causing difficult breathing. Dusts or mists also have the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis in a small percentage of exposed individuals. Symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Nickel is suspected of causing nasal and lung cancer. Symptoms include pain, bleeding, nasal obstruction, vision impairment, weight loss and voice resonance change.

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.

Indigestion: 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 nickel dust generated from these products.

Carcinogenicity: 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.

Conditions Aggravated by Exposure: Lung and other pulmonary and skin conditions may be aggravated by exposure.

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.

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.

FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A **Flammable Limits:** N/A
Test Method Used: -- **LEL:** -- **UEL:** --
Hard cemented 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, smother with 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 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: Stable
Conditions to Avoid: N/A
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: Will not occur.

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 the PEL or TLV), 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 reclamation.

SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or TLV. All appropriate requirements 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 to 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 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 the PEL or TLV), wet dust mop or wet clean-up. If airborne dust is generated, use an appropriate NIOSH respirator. Wash hands thoroughly after handling, before eating or smoking. Wash exposed skin at the end of the 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

Garr Tool Company

Safety Director

517-463-6171

June 1, 1994

Supersedes: Jan. 4, 1988

Although Garr Tool has attempted to provide current and accurate information herein, Garr Tool makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury of any kind which may result from or arise out of the use of or reliance on the information by any person.