Material Safety Data Sheet

Chemical Name: Sintered Tungsten Carbide with Cobalt Binder

Trade Name and Synonym: Hardmetal, Sintered Carbide, Carbide Cutting Tools

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

PHYSICAL DATA

Appearance and Odor: Dark Gray Metal / No Odor

Boiling Point:	N/A	Specific Gravity (H_2O=1):	12.50-15.10
Vapor Pressure (mm Hg):	N/A	Percent Volatile by Volume:	0
Vapor Density (Air =1):	N/A	Evaporation rate:	N/A
Solubility in Water:	Insoluble	How Best Monitored:	Air Sample

HAZARDOUS INGREDIENTS

MATERIAL	Weight %	CAS#	OSHA PEL: TWA
Tungsten Carbide (Tungsten Insoluble Compounds as W):	75-97%	7440-33-7	5mg/m^3
Tungsten Carbide (Tungsten Soluble Compounds as W):	75-97%	7440-33-7	1mg/m^3
Cobalt Metal, Dust, and Fume (as Co):	3-25%	7440-48-4	0.05mg/m^{3*}
Tantalum Carbide (Tantalum Metal and Oxide Dust as Ta):	0-11%	7440-25-7	5mg/m^3
Chromium (II+III) Compounds as (Cr):	0-0.6%	7440-47-3	0.5mg/m^3
Chromium Metal (as Cr):	0-0.6%	7440-47-3	1mg/m^3
Nickel (Metal and Insoluble Compounds as Ni):	0-5.0%	7440-02-0	1mg/m^3
Nickel (Soluble Compounds as Ni):	0-5.0%	7440-02-0	0.1mg/m^3

*MIOSHA, OSHA 0.1 mg/m^3

HEALTH HAZARD DATA

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 the skin and 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 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.

HEALTH HAZARD DATA - continued

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.

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

Inhalation – If symptoms of pulmonary involvement develop (coughing, wheezing, shortness or 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 copius amounts of water. If irritation persists, seek medical attention.

Indigestion – If substantial quantities are swallowed dilute with large amounts of water, induce vomiting and seek medical attention.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, other):
IARC and NIOSH have indicated that cobalt metal is suspected human carcinogenic. Be especially cautious of inhaling mist from wet grinding.

FIRE AND EXPLOSION HAZARD DATA

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 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 favoring conditions of particle size, dispersion, and strong ignition source. However, this is not expected to be a problem under normal handling conditions.