

MATERIAL SAFETY DATA SHEET

COMPANY NAME: CLEVELAND TWIST DRILL CO.
Address: P.O. BOX 6656
CLEVELAND, OHIO 44101
Telephone No.: 216-431-3120

Chemical Name: Cemented Carbide Product with Cobalt binder.

Trade Name and Synonyms: All Cleveland Carbide Grades

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

PHYSICAL DATA

Appearance and Odor:	Dark Gray Metal/No Odor	Specific Gravity (H ₂ O = 1):	11.0 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		

HAZARDOUS INGREDIENTS

Material	Percent by Weight		OSHA PEL	ACGIH TLV
Tungsten Carbide (limits for Tungsten dust)	41 - 97%	*	-----	5 mg/m ³
Cobalt	3 - 30%	*	0.1 mg/m ³	0.1 mg/m ³
Tantalum Carbide (limits for Tantalum dust)	0.0 - 16.5%	*	5 mg/m ³	5 mg/m ³
Chromium Carbide (limits for Chromium (+3) dust)	0.0 - 5.1%	*	1 mg/m ³	0.5 mg/m ³
Chromium (+3)	0.0 - 4.5%	*	1 mg/m ³	0.5 mg/m ³
Titanium Carbide (limits for Titanium dust)	0.0 - 16.5%	*	-----	5 mg/m ³

*Depends on grade specifications

HEALTH HAZARD DATA

Routes of Exposure:

Grinding cemented carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the 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 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. Certain pulmonary conditions may be aggravated by exposure.
- Skin Contact - Can cause irritation or an allergic skin rash due to cobalt sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.
- 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 or 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.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, other):

None of the components of this material have been identified as known or suspected carcinogens by NTP, IARC or OSHA.

FIRE AND EXPLOSION HAZARD DATA

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

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 use 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.