



PRO-CUT

MATERIAL SAFETY DATA SHEET

Chemical Name: Cemented Tungsten Carbide Product with Cobalt Binder.

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 ₂ O = 1):	11.0 to 15.5
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	CAS NUMBER	% BY WEIGHT	OSHA TLV-TWA (mg/m ³)	ACGIH TLV-TWA (mg/m ³)	NFPA HAZARD RATING SCALE 0-4	
					HEALTH	REACTIVITY
Tungsten Carbide	12070-12-1	30.0-97.7	5	5	NO NFPA RATING	0
Cobalt	7440-48-4	2.0-25.0	0.05	0.05	1	3
Tantalum Carbide	12070-06-3	0.1-15.0	5	5	NO NFPA RATING	0
Titanium Carbide	12070-08-5	0.1-15.0	5	NONE ESTABLISHED	NO NFPA RATING	0
Niobium Carbide	12069-94-2	0.1-15.0	5	5	NO NFPA RATING	0

HAZARD HEALTH DATA	
Route 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 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.

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CHEMICAL NAME: Cemented Tungsten Carbide Product with Cobalt Binder.

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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 of breath, etc.) remove from exposure and seek medical attention.
Skin Contact	- If irritation or rash occurs, thoroughly wash affected areas 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 large amounts of water. Induce vomiting and seek medical attention.
Carcinogenic Assessment (NTP annual report, IARC Monographs, other): Cobalt has been listed as suspected carcinogen on the NIOSH toxic substance list.	

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 power fires, smother with dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.			
Special Fire Fighting Procedure: 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.			

REACTIVITY DATA	
Stability: Unstable Stable X	Condition to Avoid: N/A
Incompatibility: Contact of dust with strong oxidizers may cause fire or explosion.	Materials to Avoid: Strong Acids
Hazardous Decomposition Products: None	Conditions to Avoid: N/A
Hazardous Polymerization: May Occur Will Not Occur X	

REGULATORY INFORMATION		
This product contains the following chemicals subject to the reporting requirements of SARA 311.40 CFR 172		
CAS Number: 7440-48-4	Chemical Name: Cobalt	Percent by Weight: 2.0-25.0

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PART #'S

JIP FF5030430

JIP FF5030860

JIP FF5640170



Material Safety Data Sheet

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CHEMICAL NAME: Cemented Tungsten Carbide Product with Cobalt Binder

SPILL OR LEAK PROCEDURE

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 OSHA PEL or the ACGIH 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 reclaim.

SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate OSHA PEL or the ACGIH 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 airborne dust exposure to levels which do not exceed the OSHA PEL or the ACGIH 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 OSHA PEL or the ACGIH TLV), wet dust mop or wet clean up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

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 examinations are recommended for individuals regularly exposed to dust or mist.





PRO-CUT

WARNING

CEMENTED CARBIDE PRODUCT
 Contains one or more of the following substances:
 Tungsten Carbide, Cobalt, Tantalum Carbide, Chromium Carbide, Chromium, Molybdenum Carbide, Molybdenum, or Vanadium Carbide

Read Material Safety Data Sheet for applicable carbide grade before grinding product.

WARNING: GRINDING OF THIS PRODUCT WILL PRODUCE DUST OF POTENTIALLY HAZARDOUS INGREDIENTS.

Dust from grinding this product can cause nose, throat, skin and eye irritation and temporary or permanent respiratory disease in a small percentage of exposed individuals. Permanent respiratory disease can lead to a disability or death. Cobalt dust from wet grinding may contain dust.

Avoid breathing dust or mist. - Use protective devices.
 Avoid prolonged skin contact with dust or mist.
 Use adequate ventilation when grinding.
 Maintain dust level below OSHA and ACGIH levels.
 Wash hands thoroughly after handling, before eating or smoking.
 Dispose of residuals according to local, state and/or federal regulations.

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MATERIAL SAFETY DATA SHEET

Chemical Name: Cemented Tungsten Carbide Product with Cobalt Binder

Trade Name and Synonyms: All PRO-CUT Tungsten Carbide Grades and all other Tungsten Carbide Grades that we purchase from other Carbide Suppliers that fall in the ANSI grade classification of C-1 to C-12

Chemical Family: Refractory Metal Carbide

Molecular Weight: N/A

PHYSICAL DATA			
Appearance and Odor:	Dark Gray, Metallic/Dull		
Boiling Point:	N/A	Specific Gravity (100°F):	10.2 to 15.5
Vapor Pressure (mmHg):	N/A	Percent Volatile by Volume:	0
Vapor Density (Air=1):	N/A	Evaporation Rate:	N/A
Solubility in Water:	Insoluble	Flow Best Monitored:	As sample

HAZARDOUS INGREDIENTS			
Material	Percent by Weight	OSHA PEL	ACGIH TLV
Tungsten Carbide (dusts for Tungsten dust)	53.97%	—	5 mg/m ³
Cobalt	3.28%	.01 mg/m ³	0.1 mg/m ³
Tantalum Carbide (dusts for Tantalum dust)	0.650%	5 mg/m ³	5 mg/m ³
Chromium Carbide (dusts for Chromium ^{VI} dust)	0.051%	1 mg/m ³	0.5 mg/m ³
Chromium ^{III}	0.045%	1 mg/m ³	0.5 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 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 bronchial asthma, 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. Irritation fibrosis (lung scarring) can lead to permanent disability or death.

Skin Contact:	- Can cause irritation of 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 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, drink with large amounts 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:	—
Hard Composite 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.		Flammable Limits:	N/A
		LEL:	—
		UEL:	—
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 varying conditions or 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 strong oxidizers may cause fire or explosion.
Materials to Avoid:	Strong Acids
Hazardous Decomposition Products:	None
Conditions to Avoid:	N/A
Hazardous Polymerization:	May Occur Will Not Occur

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 OSHA PEL or the ACGIH 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 governmental regulations. May be used as scrap for recycler.

SPECIAL PROTECTION INFORMATION	
Respiratory Protection:	Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate OSHA PEL or the ACGIH TLV. As 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 levels which do not exceed the OSHA PEL or the ACGIH TLV if such equipment is not available use respirators as specified above.
Protective Gloves:	Protective Gloves of Nitrile or Latex type 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 OSHA PEL or the ACGIH TLV), wet dust mop or clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator.
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 filter) the clothing, rags, or other items.	
Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.	

Issue Date: October 1985
 Supersedes: N/A
 REV. DATE NOV. 1999