



GEM
TOOL CORPORATION

1125 W. Northbranch Drive
Oak Creek, WI 53154 USA
414-762-1545 phone
414-762-0615 fax
www.gemtoolcorp.com

Gem Tool Corporation Material Safety Data Sheet for Carbide Products

THIS MSDS ARE FOR PRODUCTS YOU PURCHASE FROM GEM TOOL CORPORATION AND IT'S VENDORS AND IS DESIGNED TO COMPLY WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARDS.

I. IDENTIFICATION

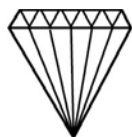
PRODUCT NAME: TUNGSTEN CARBIDE
 CHEMICAL NAME: Cemented Carbide Products with Cobalt / Nickel Binder
 TRADE NAME: C1,C2,C5,C6,C10,C12,C14
 SYNONYMS : WC, Tungsten Carbide, Cemented Carbides
 CAS # : 12070-12-1
 GENERAL FORMULA: WC-Co, WC-Ni

II. PHYSICAL DATA

BOILING POINT : >2870°C
 MELTING POINT : >1400°C
 SPECIFIC GRAVITY (H2O=1) : 13 TO 16
 PERCENT VOLATILES : 0
 VAPOR PRESSURE @ 20°C : N/A
 VAPOR DENSITY (air=1) : N/A
 SOLUBILITY IN WATER : INSOLUBLE
 EVAPORATION RATE : NEGLIGIBLE
 APPEARANCE & ODOR : Dark Gray Power or Shapes / Odorless
 : Some coated products may appear in different colors due to coatings

III. INGREDIENTS

MATERIAL	CAS NUMBER	% BY WEIGHT	OSHA TLV/TWA8 (mg/m3)	ACGIH TLV/TWA8 (mg/m3)
Tungsten Carbide (limits for W dust)	12070-12-1	75-96	5	5
Cobalt	7440-48-4	4-25	0.05	0.05
Nickel	7440-02-0	0-1	1	1
Vanadium Carbide	11130-21-5	0-1	---	---
Tantalum Carbide	1207-06-3	0-16	5	5
Titanium Carbide	12070-08-5	0-16	5	5
Niobium Carbide	12069-94-2	0-5	5	5
Hafnium Carbide	12069-85-1	0-5	.5	---
Titanium Nitride (as a coating)	---	0-.5	5	---
Tantalum Nitride (as a coating)	---	0-.5	5	5



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IV. FIRE & EXPLOSION HAZARD DATA

FLASH POINT: Not determined

FIRE HAZARDS: Hard, cemented carbide products are not a fire hazard. Finely divided carbide powder or dusts from grinding is expected to be a fire and or explosion hazard under rare and favoring conditions of high temperatures or ignition sources, particle size and dispersion in air. Under normal handling conditions, this is not expected to be a problem.

FIREFIGHTING: For small, localized powder fires, smother with dry sand, dry dolomite, soda ash, ABC-Type fire extinguisher, or flood with water.

SPECIAL: For a powder fire, confined to a small place, use an approved respirator for toxic dust and fumes. For large fires, firefighters should use self-contained breathing apparatus equipment and move affected container from area. Cool containers exposed to flame with water from side until well after fire is out.

V. ROUTES OF EXPOSURE / HEALTH EFFECTS / FIRST AID

ROUTES of EXPOSURE: Grinding of cemented carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed, or come into contact with skin or eyes.

EFFECTS OF OVEREXPOSURE:

Inhalation: Dust from grinding can cause irritation of the nose and throat. Nickel is suspected of causing nasal and lung cancer. Symptoms associated with overexposure to nickel include pain, bleeding, nasal obstruction, vision impairment, weight loss, and voice resonance change. These dusts also have 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. If symptoms develop, remove exposure and seek medical attention.

Skin Contact: Can cause irritation or allergic skin rash due to nickel or cobalt sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure. If irritation or rash occurs, wash affected area with soap and water and isolate area from additional exposure. If irritation or rash persists, seek medical attention.



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Ingestion: Ingestion of large amounts of cobalt has the potential for causing blood, heart, thyroid and gastrointestinal problems. If large amounts of product are ingested, dilute with large amounts of water and induce vomiting. Seek immediate medical attention.

Eye Contact: Can cause irritation. If contact occurs, flush eye(s) with large amounts of water and if irritation persists, seek medical attention.

CARCINOGENIC ASSESSMENT:

Nickel has been identified as a suspected carcinogen by NTP, IARC and/or OSHA

VI. REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY: Contact of dusts with strong oxidizers may cause fire or explosion

MATERIALS TO AVOID: Strong Acids

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition may produce toxic smoke and irritating fumes

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Clean up area using methods that avoid dust generation. If airborne dusts are generated, use NIOSH/OSHA approved respirators. If vacuum systems are used to clean area, appropriate HEPA filters are required to keep air levels of dust below recommended TLV/PEL.

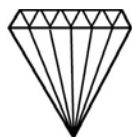
WASTE DISPOSAL METHODS

This is a valuable material and should be reclaimed if possible. If material cannot be reclaimed, disposal should be made in accordance with all state, federal and local environmental regulations.

VIII. SPECIAL PROTECTION INFORMATION / PRECAUTIONS

RESPIRATORY PROTECTION:

Use an appropriate NIOSH/OSHA approved respirator if airborne dust concentrations exceed the appropriate PEL<TLV< or TWAS. All appropriate requirements set forth in 29 CFR 1910.134 should be met.



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VENTILATION:

Use local or general ventilation to maintain exposure levels below PEL, TLV, or TWAS.

PERSONAL PROTECTIVE EQUIPMENT:

Protective gloves or barrier creams are recommended to prevent skin contact with this substance. Protective eyewear, including safety glasses or goggles are recommended. Contact lenses should not be worn when working around dust of this substance.

HOUSEKEEPING:

Maintain good general housekeeping practices to prevent dust accumulation during grinding.

PERSONAL HYGIENE:

Wash hands thoroughly after contact with substance before eating or smoking.

Periodic medical examinations are recommended for individuals regularly exposed to dust or mists of this substance.

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:

Normal precautions common to good manufacturing practices should be followed in handling and storage. Keep container tightly closed. This product is suitable for storage in general chemical storage area. This product is for INDUSTRIAL USE ONLY.

X. REGULATORY INFORMATION

SARA 311/312 REPORTING HAZARD CATEGORIES

<u>Acute</u>	<u>Chronic</u>	<u>Fire</u>	<u>Pressure</u>	<u>Reactive</u>
X	X			

OSHA 29 CFR 1910.1200: Covered under the OSHA "Hazardous Communication" standard.

Toxic Substances Control Act: All components are on the TSCA inventory.

Product or Components of Product	SARA EHS TPQ (lbs)	Sec 304 RQ (lbs)	SARA 313	CERCLA RQ (lbs)	RCRA
Cobalt	-	-	YES	-	-
Cobalt Compounds	-	-	YES	-	-
Nickel	-	-	YES	100	-
Nickel Compounds	-	-	YES	-	-
Tungsten Carbide	-	-	NO	-	-
Vanadium Carbide	-	-	NO	-	-

CERCLA Ratings (Scale 0-3): Health 0 / Fire 0 / Reactivity 0 / Persistence 0



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Gem Tool Corporation urges each customer or recipient of this MSDS to study it carefully and understand the hazards if any, associated with this product. To promote safe handling, each customer should (A) notify its employees, contractors, agents and others whom it knows or believes will use this material or the information contained in this MSDS and any other information regarding hazards or safety; (B) furnish this information to each of its customers for this product; and (C) requests its customers to notify their employees, customers, and other users of this product information.

NOTE Since the use of this information and of these opinions and conditions of the use of the product are not within the control of Gem Tool Corporation, it is the user's obligation to determine the conditions of safe use of the product.

Although Gem Tool Corporation has attempted to provide current and accurate information herein, Gem Tool Corporation 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.

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Gem Tool Corporation
1125 W Northbranch Drive
Oak Creek, WI 53154 USA

Ph # (414) 762-1545

Fx # (414) 762-0615

Email: sales@gemtoolcorp.com