



MATERIAL SAFETY DATA SHEET

MSDS # 005

K-0963-005

Date of Issue: 1/10

Supersedes: 5/07

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name/Powder Grade:

Kennametal Cutter Bit, Snowplow Blade, Longwall Bit, Drill Bit, Vacuum Bit, Roof Bit, Chopper Blade, Kenclaw Bit, Pilot Bit, Soil Stabilizer, Boring Head, Auger Head, Wear Bar. These products may be composed of Kennametal tungsten carbide grades K6T, K3055, K3060, K3012E, K3404, K3406, K3411, or K3560. RTW grades 203T, 210D, 273B, 273J, A,G,K, or WA-10C, AMT Grades 397, 399, 610, 365, 356, 357, 358, 359, or 362 and ASTM steel grades 1020, 15B35, 3030C, 30376, 4130, 4140H, 4150, 4340, 8630, or ASTA36

Chemical Name: N/A

Synonyms: N/A

Product Use: Metalworking Tools, Metallurgical Products, Mining and Construction Products

Manufacturer: Kennametal Inc., 1600 Technology Way, P.O. Box 231 Latrobe, PA 15650

EMERGENCY TELEPHONE NUMBER: CHEMTREC
For Domestic Shipments: 1-800-424-9300
For Shipments outside the US: 703-527-3887

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Material	CAS Number	% by Weight	OSHA PEL	ACGIH TLV	NFPA HAZARD RATING SCALE		
			TWA (mg/m ³)	TWA (mg/m ³)	Health	Fire	Reactivity
Carbide Composition:							
**Tungsten Carbide (WC)	12070-12-1	70-98	15	10	1	0	0
*Cobalt (Co)	7440-48-4	2-30	0.1	0.02	2	3	0
Steel Composition:							
Iron (Fe)	7439-89-6	90.0-99.0	10	None established	0	3	0
*Chromium (Cr)	7440-47-3	0-3.0	1	0.5	2	1	1
*Nickel (Ni)	7440-02-0	0-3.0	1	1.5	2	0	0
*Manganese (Mn)	7439-96-5	0-3.0	5 (ceiling)	0.2	3	2	1

*Identifies substances that are subject to the requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

**This substance is regulated by OSHA as a Particulate Not Otherwise Regulated (PNOR). The exposure limits listed for both OSHA and ACGIH refer to total dust; the OSHA PEL for the respirable fraction is 5 mg/m³.

SECTION 3 - HAZARDS IDENTIFICATION

In the form of a powder, this odorless, colorless, gray material may cause respiratory and/or skin irritation. Overexposure to this material in the form of a fume from welding or metallurgical powder, dust or mist from grinding or sweeping is hazardous to health. May cause temporary or permanent respiratory disease. Permanent respiratory disease can lead to disability or death. Preexisting pulmonary and skin conditions such as emphysema, asthma, bronchitis and dermatitis may be aggravated by exposure to this material. In addition, this material may also adversely affect the central nervous system, kidneys and liver.

Note: Health effects listed are for exposure to fumes from welding or metallurgical powders, dust, or mist from grinding. No health effects have been reported for exposure to this material in solid form.

Inhalation: Irritant/Sensitizer: 10 mg (Ni)/m³ or 20 mg (Cr)/m³ is immediately dangerous to life and health.

Acute Overexposure: May cause respiratory tract irritation with wheezing, shortness of breath, and fits of coughing which may produce blood and soreness in the chest. May also cause weight loss, fever, bronchitis, asthma and

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inflammation of or damage to lung tissue, with the build-up of fluid in the lungs as a delayed symptom. Allergic respiratory reaction or anaphylaxis may occur in previously exposed individuals. Fumes may cause metal fume fever characterized by chills, fever, muscle aches, headache, dryness of the mouth and throat, nausea, vomiting, and abdominal pain.

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Chronic Overexposure: May cause mucous membrane irritation, allergic respiratory reaction, obstructed airways, build-up of dust in the lungs, and lung disease, with symptoms as described in acute overexposure. Previously exposed individuals may be at increased risk. May also cause central nervous system effects from muscle weakness to spastic gait to paralysis.

Skin Contact: Irritant/Sensitizer: In the form of metallurgical powder, dust, or mist from grinding.

Acute Overexposure: May cause irritation with inflammation, rash, and itching. May also cause allergic skin reaction if previously exposed. A rash may develop, usually in the flexor areas of the elbow, neck and face.

Chronic Overexposure: May cause inflammation and/or rash (irritant or allergic contact dermatitis).

Eye Contact: Irritant.

Acute Overexposure: May cause irritation with redness, pain and itching.

Chronic Overexposure: May cause conjunctivitis.

Ingestion: Irritant: In the form of metallurgical powder, dust, or mist from grinding.

Acute Overexposure: May cause abnormally low blood pressure and gastrointestinal irritation with pain, vomiting, and sensations of hotness or nausea. Large doses may cause diarrhea. Severe exposure may cause heart damage, convulsions, or enlargement of the thyroid.

Chronic Overexposure: May adversely affect the pancreas, thyroid gland, heart, or bone marrow. May also cause chronic fatigue, swelling due to fluid retention, and decreased movement of the eyes and eyelids.

SECTION 5 - FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Negligible fire and explosion hazard when exposed to heat or flame.

Flash Point: Not applicable.

Firefighting Media: For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire extinguishing media appropriate to fight surrounding fire.

Special Firefighting Procedures: Move container from fire area if possible. Cool containers exposed to flame with water from side until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, or withdraw and let fire burn. Use powdered sodium chloride, or suitable dry powder. Avoid breathing fumes from burning material. Firefighting personnel must use proper respiratory protection and protective fire suits.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled: Sweep up with minimum amount of dust generation and place in suitable clean, dry containers for later disposal or reclamation. Residue should be cleaned up using a high efficiency particulate filter vacuum or wet clean up. Use appropriate personal protective equipment including respiratory protection.

SECTION 7 - HANDLING AND STORAGE

Handling and Storage: Minimize free fall of powder and avoid dispersion of dust in air. Finely divided particles, dust, or fumes may be flammable or explosive. Keep away from sparks or ignition sources. Contents should be stored in a clean, cool area.

Other Precautions: Wash hands thoroughly after handling, before eating or smoking. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming. Periodic examinations are recommended for individuals regularly exposed to dust or mist.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Provide local exhaust ventilation or general dilution to maintain exposure levels below the PEL and TLV.

Respiratory Protection:

0.05 mg (Co)/m³ - Single-use approved dust and mist respirator.

0.5 mg (Co)/m³ - Dust mask, except single-use respirator.

1 mg (Co)/m³ - Dust mask, except single-use and quarter-mask respirator. Fume or high efficiency particulate respirator.

5 mg (Co)/m³ - High efficiency particulate respirator with a full facepiece. Supplied-air respirator with a full facepiece, helmet or hood. Self-contained breathing apparatus with a full facepiece.

20 mg (Co)/m³ - Powered air-purifying respirator with a high efficiency filter with a full facepiece. Type "C" supplied-air respirator with a full facepiece operated in pressure-demand or other positive-pressure mode.

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Firefighting: Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive-pressure mode.

Clothing: Employee must wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this substance. Soiled clothing should be laundered separately.

Gloves: Employee must wear appropriate protective gloves or barrier creams to prevent contact with this substance.

Eye Protection: Safety glasses with side shields or goggles are recommended. Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use. Contact lenses should not be worn when handling these materials.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Steel holder with tungsten carbide bit

Solubility in Water: N/A

Petroleum Based Solvent Solubility: N/A

Boiling Point: N/A

Melting Point: 1412°C (2600°F)

Specific Gravity: (H₂O = 1): N/A

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressure.

Decomposition: Thermal decomposition may release acrid smoke and irritating fumes.

Incompatibilities:

Tungsten Carbide:

Chlorine Trifluoride: Reacts with a flame.

Fluorine: Incandescence.

Nitrogen Dioxide, Nitrous Oxide: Burns with incandescence if heated to dull red.

Iodine Pentafluoride, Lead Oxide: Reacts violently.

Cobalt:

Ammonium Nitrate + Metals or Bromine Pentafluoride: Reacts violently and sometimes explosively.

Hydrazinium Nitrate: Decomposes explosively upon rapid heating.

Nitryl Fluoride, Acetylene: Reacts incandescently.

Iron:

Fluorine or phosphorus: May become incandescent when heated.

Chlorine Trifluoride: May cause incandescent reaction.

Hydrogen Peroxide: Violently decomposes on contact.

Chromium:

Ammonium Nitrate: May produce violent or explosive reaction.

Carbon Dioxide: Chromium dust may become ignitable and explosive.

Bromine Pentafluoride: May cause violent reaction.

Nitrogen Oxide or Sulfur Dioxide: May produce vigorous reaction with incandescence.

Nickel:

Oxidants, Fluorine Ammonium Nitrate, Hydrazine, Ammonia, Performic Acid, or Strong Acids: Reacts violently.

Aluminum: May react explosively upon heating.

Aluminum Trichloride and Ethylene: May explode upon heating.

Hydrogen: Exothermic above 150°C.

Titanium and Potassium Chlorate: May explode due to friction.

Sulfur, Sulfur Compounds, Selenium: Incandescent upon heating.

Manganese:

Water or steam: Produces highly flammable hydrogen.

Carbon Dioxide: Ignitable and explosive when suspended.

Fluorine: Ignitable and explosive when suspended.

Chlorine: Ignitable and becomes incandescent when warmed.

Hydrogen Peroxide, concentrated: Violent decomposition and/or ignition.

Nitric Acid: Incandescent reaction and feeble explosion.

Phosphorus: Incandescent reaction when heated.

Sulfur Dioxide: Pyrophoric manganese burns brilliantly on warming.

SECTION 11 - TOXICOLOGICAL INFORMATION

Cobalt: Carcinogenic status: The International Agency for Research on Cancer (IARC) lists Cobalt and Cobalt compounds as Category 2B carcinogens (Possibly Carcinogenic to Humans). Cobalt fumes or dust may cause

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pulmonary, skin, or eye irritation. Cobalt may be a sensitizing agent for skin and respiratory system. Chronic exposure may affect the heart, pancreas, thyroid gland, or bone marrow.

Rat Oral LD_{Lo}: 1500 mg/kg.

Rabbit Oral LD_{Lo}: 20 mg/kg

Rat Intraperitoneal LD_{Lo}: 250 mg/kg

Rabbit Intratracheal LD_{Lo}: 100 mg/kg

Rat Intravenous LD_{Lo}: 100 mg/kg

Chromium: Carcinogenic status: There is evidence of increased incidence of lung cancer among chromium alloy workers. However, according to IARC, the chromium compounds responsible cannot be specified.

Nickel: Carcinogenic status: The International Agency for Research on Cancer (IARC) lists metallic Nickel and Nickel compounds as Category 2B carcinogens (Possibly Carcinogenic to Humans). Epidemiological studies indicate an increased incidence of cancer of the nasal cavity, lungs and possibly the larynx in nickel refinery workers. Nickel is an eye, skin, and mucous membrane irritant, and a pulmonary and skin sensitizer.

Rat Oral LD_{Lo}: 5 mg/kg.

Dog Intravenous LD_{Lo}: 10 mg/kg

Guinea Pig Subcutaneous LD_{Lo}: 500 mg/kg

Rat Intratracheal LD_{Lo}: 12 mg/kg

Mouse Intravenous LD_{Lo}: 50 mg/kg

SECTION 12 - ECOLOGICAL INFORMATION

No data are available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method: To return used tungsten carbide products of 500 pounds or greater, please FAX Metallurgical Operations at 724-539-3942. This is a valuable material that should be sent to an appropriate reclamation facility if available. If material cannot be sent to a reclamation facility, disposal should be made in compliance with federal, provincial/state, and local environmental regulations.

SECTION 14 - TRANSPORT INFORMATION

Some finely divided powder may be classified as 'flammable solid' according to the Department of Transportation and International Air Transportation Association guidelines. If a regulated powder is resold and shipped in the same physical form it was received, appropriate labeling, marking, documenting, and placarding must accompany the shipment.

SECTION 15 - REGULATORY INFORMATION

Some ingredients in Kennametal products, including Cobalt, Nickel, Copper, Chromium and Chromium Compounds, are subject to the requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

SECTION 16 - OTHER INFORMATION

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

For free powder handling or metallurgical safety booklets write: Kennametal Inc., MSDS Coordinator, P.O. Box 231, Latrobe, PA 15650. For technical information contact Corporate EHS, phone 724-539-5066 or fax 724-539-5372. To purchase Kennametal products call 1-800-446-7738.

For additional MSDSs or any other information, contact Kennametal Corporate Compliance Office, phone 724-539-5747 or FAX: 724-539-5439 and visit our website at www.kennametal.com.

Prepared by: Hazard Communication Committee