

**MATERIAL SAFETY DATA SHEET****1. PRODUCT AND MANUFACTURER IDENTIFICATION**

*Chemical Name:* Cemented Tungsten Carbide with Cobalt/Nickel Binder

*Synonyms:* Firthite Tungsten Carbide Grades, Grade Powder

*Chemical Formula:* WC+Co, WC+Ni

*Chemical Family:* Refractory Metal (non-ferrous metal)

*Manufacturer:* Bango Alloy Technologies Co.,Ltd.

**2. COMPOSITION DETAILS**

Ingredient name	CAS Number	% WT
Tungsten	7440-33-7	67-97%
Nickel	7440-02-0	1-15%
Chromium Carbide	12012-35-0	0-5.1%
Tantalum Carbide	12070-06-3	0-30%
Cobalt	7440-48-4	3-30%

**3. PHYSICAL DATA**

Appearance: Grey to black Metallic

Odor: No Odor

Specific Gravity (H<sub>2</sub>O = 1): 11.0 to 15.5

Boiling Point: N/A

Percentage 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

**4. HEALTH HAZARD DATA**

**Routes of exposure:**

Grinding cemented carbide products will produce dust of potentially hazardous ingredients, which can be inhaled, swallowed or come in contact with the skin or eyes.

**Effects of over exposure:**

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:**

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.

**5. FIRE AND EXPLOSION HAZARD DATA**

Flash point: n/a

Flammable limits: n/a

Standard 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, 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, firefighters 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.

**6. 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 PEL or 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.

## **7. SPECIAL PROTECTION INFORMATION**

Tungsten heavy alloys are, in general, safe materials to handle and use under almost all commonly encountered environments. Special precautions typically only apply in situations where the alloy is present as a one powder or when operations such as machining create dust or soluble by-products.

Maintain good housekeeping procedures to prevent the accumulation of dust and the generation of airborne dust particles. Avoid dust inhalation and direct contact with the dust. Wash hands thoroughly before eating or smoking. Wash exposed skin at the end of the work shift. Periodic medical examinations are recommended for individuals regularly exposed to dust or mists.

## **8. TOXICOLOGICAL INFORMATION**

Respiratory protection: Use an appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or 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 exposure to airborne dust to levels which do not exceed the PEL or 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

## **9. 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 PEL or 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 medical examinations are recommended for individuals regularly exposed to dust or mist.

## **10. SPECIAL PRECAUTIONS**

Precautions to Be Taken in Handling and Storage: Tungsten heavy alloys are, in general, safe materials to handle and use under almost all commonly encountered environments. Special precautions typically only apply in situations where the alloy is present as a fine powder or when operations such as machining create dust or soluble by products. Maintain good housekeeping procedures to prevent the accumulation of dust and the generation of airborne dust particles. Avoid dust inhalation and direct skin contact with the dust. Wash hands thoroughly before eating or smoking. Wash exposed skin at the end of the work shift. Periodic medical examinations are recommended for individuals regularly exposed to dust or mists.

Other Precautions: Maintain good housekeeping procedures to prevent accumulation of dust. Use clean-up methods which minimize dust generation such as vacuuming or wet clean-up. If airborne dust is generated, use an appropriate NIOSH approved respirator. Do not shake clothing or other items to remove dust. Use a vacuum. Avoid dust inhalation and direct skin contact. Do not ingest. Tungsten metal powder may ignite on contact with air. Handle and store in a controlled environment and inert gas such as argon.

Work Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

## **11. DISPOSAL CONSIDERATIONS**

This material must be disposed of in accordance with any and all applicable local, state, and federal regulations. Material intended for disposal may be sold for scrap for reclaim.

## **12. TRANSPORT INFORMATION**

There are no special DOT regulations pertaining to the material when shipped in solid form.

## **13. OTHER INFORMATION**

*Prepared By:* Bango Alloy Technologies

*Date:* May 17, 2008

*Reason For Issue:* Updated Format

*The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Metalworking Products shall not be held liable for any damage resulting from handling or from contact with the above product. Any comments or questions should be directed to: Although Xiamen Bango Alloy Technologies has attempted to provide current and accurate information herein, Bango 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. The data contained on this sheet was provided for public display via the Internet.*

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