Sumitomo Electric Carbide, Inc.

Material Safety Data Sheet

MSDS date June 2, 2006

Cemented Carbide

1) Product and company identification
2) Composition/Information on ingredients
3) Hazard identification
4) First aid measures
5) Fire fighting measures
6) Accidental release measures
7) Handling and storage
8) Exposure controls/personal protection
9) Physical and chemical properties
10) Stability and reactivity
11) Toxicological information
12) Ecological information
13) Disposal considerations
14) Transport information
15) Regulatory information
16) Other information/Hazmat info/Hazcom label

SECTION 1- PRODUCT AND COMPANY IDENTIFICATION

Sumitomo Electric Carbide, Inc. Company Phone Number: 8am-4:30 pm CST (847) 635-0044
1001 Business Center Drive After hours MSDS related only: (847) 574-3250
Mt. Prospect, IL. 60056
U.S.A.
Product: Cemented Tungsten Carbide Cutting Tools with Cobalt / Nickel binder, All Grades.
Issue Date June 2, 2006
Preparer's Name: Tod Petrik

2) Composition/Information On Ingredients

Ingredients

Name: Tungsten Carbide RTECS#YO7250000
CAS Number: 12070-12-1
Chemical formula: WC
Composition Wt: 55-95%
OSHA PEL: N/A
ACGIH TLV: time-weighted average 5 mg(week)/m^3; short term exposure limit 10 mg(week)/m^3

Name: Molybdenum Carbide RTECS#N/A

CAS Number: 12069-89-5
Chemical formula: Mo2C
Composition Wt: 0-70%
OSHA PEL: N/A
ACGIH TLV: N/A

Name: Tantalum Carbide RTECS#N/K See Tantalum
CAS Number: See Tantalum
Chemical formula: TaC
Composition Wt: 0-20
OSHA PEL: TWA 5 mg/m3
ACGIH TLV: 5 mg/m³ as TWA; (ACGIH 2005).

Name: Niobium Carbide RTECS#N/A
CAS Number: 12069-94-2
Chemical formula: NbC
Composition Wt: 0-20%
OSHA PEL: N/A
ACGIH TLV: N/A

Name: Titanium Carbide RTECS#N/A
CAS Number: 12070-08-5
Chemical formula: TiC
Composition Wt: 0-20%
OSHA PEL: N/A
ACGIH TLV: TLV not established

Name: Titanium Nitride RTECS#N/A
CAS Number: 25583-20-4
Chemical formula: TiN
Composition Wt: 0-5%
OSHA PEL: N/A
ACGIH TLV: N/A

Name: Zirconium Nitride RTECS#ZH7070000
CAS Number: 7440-67-7
Chemical formula: ZrN
Composition Wt: 0-5%
OSHA PEL: OSHA PEL†: TWA 5 mg/m3
ACGIH TLV: TLV: 5 mg/m³ as TWA; 10 mg/m³ as STEL; A4 (not classifiable as a human carcinogen); (ACGIH 2004).

Name: Zirconium Carbide RTECS#N/A
CAS Number: 12070-14-3
Chemical formula: ZrC
Composition Wt: 0-5%
OSHA PEL: N/A

ACGIH TLV: N/A

Name: Vanadium Carbide RTECS#LK2900000
CAS Number: 12070-10-9
Chemical formula: VaC
Composition Wt: 0-5%
OSHA PEL: 8 hour time-weighted average 1 mg/m3
ACGIH TLV: time-weighted average 1 mg/m3; short term exposure limit 3 mg/m3

Name: Cobalt RTECS#GF8750000
CAS Number: 7440-48-4
Chemical formula: Co
Composition Wt: 0-30%
OSHA PEL: OSHA PEL†: TWA 0.1 mg/m3
ACGIH TLV: TLV: 0.02 mg/m³ as TWA; A3; BEI issued; (ACGIH 2004).

Name: Nickel RTECS#QR5950000
CAS Number: 7440-02-0
Chemical formula: Ni
Composition Wt: 0-30%
OSHA PEL: OSHA PEL*†: TWA 1 mg/m3 *Note: The PEL does not apply to Nickel carbonyl.
ACGIH TLV: .5 mg/m³ as TWA; A5 (not suspected as a human carcinogen); (ACGIH 2004).

Name: Chromium RTECS#GB4200000
CAS Number: 7440-47-3
Chemical formula: Cr
Composition Wt: 0-5%
OSHA PEL: OSHA PEL*: TWA 1 mg/m3 See Appendix C *Note: The PEL also applies to insoluble chromium salts.
ACGIH TLV: TLV: (as Cr metal, Cr(III) compounds) 0.5 mg/m³ as TWA; A4; (ACGIH 2004).

Name: Tantalum Niobium Carbide RTECS#N/P
CAS Number: 52502-86-0
Chemical formula: TaNbC
Composition Wt: 0-18%
OSHA PEL: N/A
ACGIH TLV: N/A

Name: Chromium Carbide RTECS#N/P
CAS Number: 12075-40-0
Chemical formula: Cr3C2
Composition Wt: 0-5%
OSHA PEL: N/A
ACGIH TLV: N/A

3) Hazards Identification

Grinding Cemented Tungsten Carbide Cutting Tools with Cobalt / Nickel binder may produce dust of potentially hazardous ingredients which could be inhaled, swallowed or contact the skin or eyes. During normal intended usage small amounts of dust can also be released.

Ingestion - Reports suggest that ingestion of significant amounts of cobalt has the potential for causing blood, heart and other organ problems.

Inhalation - Dust produced by grinding these products may 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 has been reported that cobalt dust is the most probable cause of such respiratory diseases. Symptoms include cough, wheezing, shortness of breath, chest tightness and weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death.

Eye Contact - Can cause mild pain or irritation.

Skin Contact – Can cause irritation or allergic rash in cobalt hyper sensitized individuals.

Chronic exposure – Prolonged, repeated inhalation of dusts may exacerbate pre-existing pulmonary and skin diseases or impaired liver and kidney functions.

4) First Aid Measures

Ingestion – After swallowing seek immediate medical attention.

Inhalation – If signs of pulmonary involvement develop (coughing, wheezing, shortness of breath etc.) remove from exposure and seek medical attention.

Eye Contact – If contamination occurs flush with large amounts of water occasionally lifting upper and lower eyelids until no material remains. Seek medical attention.

Skin Contact – If irritation or rash occurs, thoroughly wash the affected area with soap and water and isolate from exposure. If irritation or rash persists seek medical attention.

5) Fire Fighting Measures

Hard cemented Tungsten Carbide Product is not a fire hazard, however dust generated in grinding operations may ignite if allowed to accumulate and are subjected to an ignition source.

Extinguishing Media – For powder fires, smother with dry sand, dry dolomite, ABC fire extinguisher or flood with water.

Special Fire Fighting Procedure – Use NIOSH/MSHA approved SCBA and full protective gear.

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) Accidental Release Measures

Ventilate area of spill. Cleanup using methods which avoid dust generation such as vacuum (with appropriate filter to prevent air born dust levels which exceed the OSHA PEL or the ACGIH TLV), wet dust mop or wet clean up. If air born 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) Handling And Storage

Maintain good house keeping procedures to prevent dust accumulation. Avoid inhalation of, and direct skin contact with dust.

8) Exposure Controls/ Personal Protection

Respiratory Protection - Use an appropriate NIOSH approved respirator if airborn 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 exposure to air born dust levels which do not exceed the OSHA PEL or the ACGIH TLV. If such equipment is not available, use respirators as specified previously.

Don't shake clothing, rags, or other items contaminated with dust. Dust should be removed by washing, or vacuuming (with appropriate filters).

Protective Gloves – Protective gloves or barrier crème are recommended when contact with dust or mist is likely. Prior to applying barrier cream or using gloves wash hands thoroughly.

Eye Protection - Goggles or safety glasses with side shields are recommended when using cutting tools. Do not strike cutting tools with or against hardened surfaces as they may shatter violently.

9) Physical And Chemical Properties

Appearance And Odor – Dark gray metal without odor
Boiling Point - N/A
Vapor Pressure(mm/Hg) – N/A
Vapor Density (Air = 1) – N/A
Solubility In Water – Insoluble
Specific Gravity (H20 = 1) – 11.0 – 15.5
Percentage of volatile content – 0
Evaporation Rate – N/A

10) Stability and reactivity

Stability – Material is stable under normal conditions

Incompatibility – Dust coming in contact with strong oxidizers may cause fire or explosion.

Materials to avoid – Strong acids
Hazardous polymerization – Will not occur
Hazardous Decomposition Byproducts – None

11)Toxicological Information

Acute Toxicity – Dust produced by grinding this product can irritate the skin and the mucous membranes in the eyes, ears, nose, throat, as well as the respiratory system.

Symptoms may include allergic skin eruptions, coughing, asthma, shortness of breath, and tightness of the chest. If large amounts of dust are swallowed it is possible that damage may occur to the cardiac system and gastrointestinal tract.

Repeated or long term skin contact with cobalt, nickel, or chrome may cause local sensitization.

Chronic Toxicity – Repeated or long term exposure to cobalt or nickel may lead to asthma and interstitial fibrosis (lung scarring), and can also impact the heart causing cardiomyopathy.

12) Ecological Information- Caution should be used to insure that this material, particularly dust, is not allowed to be released into the environment. Some of the chemical compounds present in these products are toxic to aquatic organisms, and bioaccumulation may occur in fish and mollusks.

13) Disposal Considerations

Cemented tungsten carbide cutting tools contain ingredients that are desirable to metal recyclers. Dispose of these materials in accordance with all local, state, and federal regulations.

14)Transport Information N/A

15) Regulatory Information N/A

16) Other

Sumitomo Electric Carbide, Inc. has attempted to provide current and accurate information herein, but makes no representations regarding the accuracy or completeness of that 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.