Safety Information Sheet

Hardmetal Products and Tools
(Articles)

Internal No.: Article — 201EN-US Version 4 Issued: 25 May 2015

1: Identification of the substance/mixture and of the company

1.1: Product identifier

Hardmetal Products and Tools (Articles1)	Cemented Tungsten Carbide (Hardmetal) Products - Coated or Uncoated Synonyms: Hard Metal, Cemented Carbide, Cemented WC, and Cemented Tungsten Carbide.

1.2: Uses of hardmetal products

Identified Uses	Mining Tools, Construction Tools, Round Tools, Metalworking Tools, Metallurgical Products, and Inserts.
Uses Advised Against	Cutting, sharpening, or grinding hardmetal products and tools produces dust or mist that, at levels above the occupational exposure limit, could cause permanent respiratory disease, and can irritate nose, throat, skin and eyes. Hardmetal products and tools should not be reground or sharpened without taking appropriate safety measures to contain dust and to prevent the inhalation of dust. Hardmetal products and tools may break or shatter in use. To avoid injury, use personal protective equipment, including eye protection.

1.3: Supplier of this safety information sheet

Name	Walter USA LLC.
Address	N22 W23855 Ridgeview Parkway West, Waukesha, Wisconsin, 53066, USA
Phone	+1 800-945-5554
E-Mail of Competent Person responsible for the safety Information Sheet	jochen.baumgartner@walter-tools.com

1.4: Emergency telephone number

Emergency Telephone Number	Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)
Hours of Operation	24 hours per day / 7 days per week

2: Hazard Information

As sold and under normal conditions of use, hardmetal products and tools do not present inhalation or ingestion hazards. Uncoated hardmetal products may cause an allergic skin reaction as a result of prolonged skin contact with the product. To minimize the risk of an allergic skin reaction when handling solid hardmetal products and tools use gloves or in another way that avoids direct skin contact.

Cutting tools and holders may fragment in use. Always wear safety equipment and keep machine guards in place. If tool or product shows signs of damage, return tools to appropriate location for repair, replacement or recycling. DO NOT use or operate damaged tools or products.

Hardmetal products and tools should not be reground or sharpened without taking appropriate safety measures to contain dust and to prevent the inhalation of dust. The health hazards described below relate to hardmetal powder and its individual components, such as tungsten carbide, cobalt and nickel.

The terms "hazardous" and "hazardous materials" refer to any chemical which is a physical hazard or a health hazard and should be interpreted as such by, and in accordance with, the OSHA Hazard Communication Standard (29 C.F.R. § 1910.1200).

National Fire Protection Association Hazard Rating: HEALTH 0; FLAMMABILITY 0; REACTIVITY 0.

Emergency Overview:
Hardmetal dusts or fumes present health hazards if the exposure limits described in Section 8 are exceeded.

Primary Routes of Entry:

- Inhalation (hardmetal dust enters the body through breathing or inhaling hardmetal dust particles)
- Ingestion (eating or drinking)
- Skin or eye contact with dusts, mists or fumes

Ability or Tendency of Hardmetal to Cause CANCER (Carcinogenic Classifications):

- Cobalt metal with tungsten carbide is listed by the International Agency for Research on Cancer ("IARC") as probably carcinogenic to humans, category 2A.
- Nickel is listed by the IARC as possibly carcinogenic to humans, category 2B. Nickel, which is contained in some metal powders, is listed as reasonably anticipated to be carcinogenic to humans by the National Toxicology Program ("NTP") NTP.
- Hardmetal powder is also listed as reasonably anticipated to be carcinogenic to humans by the National Toxicology Program ("NTP").
- Cobalt is classified by Cobalt REACH Consortium as presumed human carcinogen, Category 1B
- Cobalt is listed by the American Conference of Governmental Industrial Hygienists ("ACGIH") as carcinogenic to animals, category A3.
- Cobalt and nickel are "known to the State of California to cause cancer." (Proposition 65.)

Immediate or Acute Health Effects from Hardmetal:

- Dust can cause an asthma-like attack and irritation of the nose, throat, lungs, eyes and mucous membranes.
- Skin exposure to dust or mist can cause an allergic rash.

Long-lasting or Chronic Health Effects from Hardmetal:

- Chronic or long-lasting exposure to respirable dust containing cobalt and tungsten carries the potential to cause permanent respiratory diseases, including cancer, occupational asthma, interstitial pneumonitis and fibrosis (hardmetal disease), and emphysema. Hardmetal components (cobalt, nickel) are potent skin sensitizers.

2.1: Hazards associated with the primary ingredients of hardmetal products and powder	
Tungsten Carbide	• The primary health risks of tungsten carbide are from inhaling tungsten carbide dust.
Cobalt	• Cobalt is considered as presumed human carcinogen by the Cobalt REACH consortium • Cobalt is moderately toxic if ingested. • Inhaling cobalt dust may cause lung damage • Cobalt may cause dermatites (skin irritation).
Nickel	• Nickel is considered possibly carcinogenic to humans by the IARC and reasonably anticipated to be a human carcinogen by the NTP • Hypersensitivity to nickel may cause allergic contact dermatitis

2.2: Label elements	
Hazard Pictogram(s):	Not applicable for hardmetal products
Signal Word:	Warning

Package Label Text	Product may break or shatter in use. Grinding this product produces dust or mist that, at levels above the occupational exposure limit, could cause permanent respiratory disease, and can irritate nose, throat, skin and eyes. Contains one or more of: tungsten carbide, cobalt, nickel. Read Safety Data Sheet, Safety Information Sheet or contact your sales representative. To avoid injury, use personal protective equipment, including eye protection. Use machine guards and take appropriate safety measures to contain dust and to prevent the inhalation of dust. This product contains or produces chemicals which are "known to the state of California to cause cancer." (Proposition 65)

3: Composition/Information on Ingredients

Substance Name	CAS Number[1]	Concentration range % by weight*	GHS[2]	OSHA PEL-TWA[3]	ACGIH TLV-TWA[4]
Tungston Carbide	12070-12-1	>60%	Not classified under GHS	---	5 mg/m^3
Cobalt	7440-48-3	2,5% ≤ cobalt concentration < 25%	Carc 1B, H350i, Eye Irrit. 2B, H320 Repr. 2; H361f, Acute Tox. 1, H330 Acute Tox. 4, H302 Resp. Sens. 1B, H334 Skin Sens. 1, H317 Aquatic Acute 1 (M=10), H400 Aquatic Chronic 1, (M=1), H410	0,1 mg/m3	0,02 mg/m3
Nickel	7440-02-0	1% ≤ nickel concentration < 5%	Carc. 2, H351 STOT RE 1, H372 Skin Sens. 1, H317 Aquatic Chronic 3, H412	1,0 mg/m3	1,5 mg/m3
Chronium Carbide	12012-35-0	0-10%	Not classified under CLP	0,5 mg/m3	0,5 mg/m3
Titanium Carbide	120 1-99-3	0-10%	Not classified under CLP	15 mg/m3	10 mg/m3
Tantalum Carbide	12070-06-3	0-10%	Not classified under CLP	5 mg/m3	5 mg/m3
Niobium Carbide	12070-08-5	0-10%	Not classified under CLP	---	---

*** Exact Percentages Depend on Grade Specifications**

[1] CAS Numbers are unique numerical identifiers assigned by the Chemical Abstracts Service to every chemical described in scientific literature. CAS numbers may also be referred to as CAS RNs

[2] GHS stands for Globally Harmonized System

[3] Occupational Safety and Health Agency Permissible Exposure Limit – Time Weighted Average.

[4] American Conference of Governmental Industrial Hygienists Threshold Limit Value – Time Weighted Average.

4: First Aid Measures

4.1: Description of first aid measures

Exposure to dust is not anticipated under normal and permissible conditions and use. If tool chips, breaks, fragments or is reground/sharpened, it may produce exposure to dusts of hazardous substances, which may be inhaled or ingested or come in contact with eyes and skin.

Eyes	Remove contact lenses at once. Flush eyes with water for at least 15 minutes. If irritation persists, seek medical attention.
Inhalation	If symptoms of pulmonary involvement develop (coughing, wheezing, dyspnea, etc.), remove person to fresh air. If symptoms persist, seek medical attention.
Ingestion	If substantial quantities are swallowed, dilute with large amount of water. Induce vomiting and seek medical attention.
Skin	Remove contaminated clothing. Immediately wash with soap and water and rinse thoroughly. Seek medical attention if irritation or rash persists.
General Advice	After first aid, get appropriate medical attention.

4.2: Most important symptoms and effects, both acute and delayed

In general, hardmetal dust may cause mechanical eye and skin irritation. Inhalation of dust may cause mild respiratory tract irritation. Chronic inhalation of hardmetal dust has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial lung fibrosis. Hardmetal dust may cause an allergic skin reaction.

4.3: Indication of any immediate medical attention and special treatment needed

None known

5: Firefighting Measures

5.1: Extinguishing media

Hardmetal-sintered products and tools as sold are not a fire hazard.

5.2: Special hazards arising from hardmetal product use

During normal operation and usage, hardmetal products are not a fire hazard.

5.3: Advice for firefighters

Not applicable

6: Accidental release measures

6.1: Personal precautions, protective equipment and emergency procedures

Hardmetal products and tools as provided do not present hazards that require accidental release measures. Cutting, sharpening, or grinding hardmetal products and tools produces dust or mist that, at levels above the occupational exposure limit, could cause permanent respiratory disease, and can irritate nose, throat, skin and eyes. Hardmetal products and tools should not be reground or sharpened without taking appropriate safety measures to contain dust and to prevent the inhalation of dust. Hardmetal products and tools may break or shatter in use. To avoid injury, use personal protective equipment, including eye protection.

6.2: Environmental precautions

In case of the generation of dust/mist, avoid release into the environment.

6.3: Methods and materials for containment and cleanup

Broken hardmetal tools and products should be recycled. Contact Sandvik directly for assistance or replacement.

6.4: Reference to other sections

See sections 8 and 13 for exposure controls and disposal considerations.

7: Handling and Storage

Hardmetal products as provided do not present hazards requiring precautions for safe handling and storage. Hardmetal products and tools should not be reground or sharpened without taking appropriate safety measures to contain dust and to prevent the inhalation of dust.

7.1: Precautions for safe handling

Under normal operating conditions, the use of hardmetal products do not require special safety precautions beyond normal safety procedures for handling and using cutting tools, such as wearing safety glasses and gloves.

Hygienic Practices:
Wash hands thoroughly after handling, and before eating or smoking. Wash exposed skin at the end of the work shift. Smoking and consumption of food or beverages should be restricted from areas where hazardous components may be present. Do not shake clothing, rags or other items to remove dust. Dust should be removed by laundering or vacuuming (with appropriate filters) the clothing, rags or other items.

Precautions to Be Taken in Handling and Storage:
Avoid operations that may create dust. Avoid inhalation and direct skin contact with hardmetal dust. See Section 2 for specific health hazards.

Other Precautions:
Clean up using methods that avoid dust generation such as a high-efficiency particulate air ("HEPA") vacuum, wet dust mop or wet cleanup. Use a National Institute for Occupational Safety and Health (NIOSH) – approved respirator whenever airborne concentrations of hazardous components exceed exposure limits listed in Section 8.

7.2: Conditions for safe storage, including any incompatibilities

Hardmetal products and tools as provided do not present hazards requiring precautions for safe storage.

7.3: Specific end use(s)

Hardmetal products and tools are used as cutting and machining tools, mining and drilling tools and wear parts.

8: Permissible Exposure Levels for Hardmetal

Cutting, sharpening, or grinding may lead to occupational exposure to hardmetal in the form of dusts, mists or fumes. Exposure to hardmetal and its individual components, such as tungsten carbide, cobalt or nickel, is hazardous.

Permissible Exposure Levels or Limits:
The exposure limits, or levels, listed in the table below indicate the maximum concentration of tungsten carbide, cobalt and/or nickel (the primary components of hardmetal) to which a person can be safely exposed. For each of these identified exposure limits or levels, the presence of tungsten, cobalt and nickel are measured in terms of milligrams per cubic meter (mg/m^3).

8.1: Permissible Exposure Table

Country	For tungsten and insoluble compounds, as tungsten		Cobalt		Nickel	
	8-h Limit Value (mg/m^3)	Short-term Limit Value (mg/m3)	8-h Limit Value (mg/m^3)	Short-term Limit Value (mg/m3)	8-h Limit Value (mg/m^3)	Short-term Limit Value (mg/m3)
ACGIH TLV[1]	5	-	0.02	-	0.1	-
Canada, (Ontario, Québec)	5	10	0.02	-	1	-
USA - NIOSH[2]	5	10[+]	-	-	0,5*	-
USA - OSHA[3]	-	-	0.1	-	0.015	-

* Inhalable aerosol.

[+]15 minutes

[1] "ACGIH TLV" is the American Conference of Governmental Industrial Hygienists Threshold Limit Value, which is the threshold limit value of a chemical substance that a worker can be exposed to day after day for a working lifetime without adverse health effects. Further information is available at http://www.acgih.org/tlv/

[2] The National Institute for Occupational Safety and Health (NIOSH) has established recommended exposure limits (RELs). The NIOSH RELs are recommended and not mandated by law in the United States.

[3] OSHA Permissible Exposure Limit ("PEL") Time Weighted Average (TWA). The PEL is a legal limit in the United States for exposure of an employee to a chemical substance or physical agent. OSHA PELs are based on an eight-hour TWA exposure. Exposure level is usually measured in parts per million (ppm), or in milligrams per cubic meter (mg/m^3).

8.2: Exposure controls

All personal protective equipment should meet the requirements of 29 C.F.R. §1910.132-138.

Always wear safety equipment and keep machine guards in place. If tool or product shows signs of damage, return tools to appropriate location for repair, replacement or recycling. DO NOT use or operate damaged tools or products.

Cutting, sharpening, or grinding hardmetal products and tools produces dust or mist that, at levels above the occupational exposure limit, could cause permanent respiratory disease, and can irritate nose, throat, skin and eyes. Hardmetal products and tools should not be reground or sharpened without taking appropriate safety measures to contain dust and to prevent the inhalation of dust. Hardmetal products and tools may break or shatter in use. To avoid injury, use personal protective equipment, including eye protection.

Individual protection measures:

Eye/face protection	Use safety glasses as appropriate and reasonably necessary.
Skin protection	Use work gloves and work clothes as appropriate and reasonably necessary.
Respiratory protection	In the case of dust generation, avoid inhalation or skin contact. Use respiratory protection as appropriate and reasonably necessary.

9: Physical and Chemical Properties

Not applicable for hardmetal products and tools.

10: Stability and Reactivity

10.1: Reactivity

Hardmetal products are not reactive.

10.2: Chemical stability

Hardmetal products are chemically stable.

10.3: Possibility of hazardous reactions

Not applicable.

10.4: Conditions to avoid

Cutting, sharpening, or grinding hardmetal products and tools produces dust or mist that, at levels above the occupational exposure limit, could cause permanent respiratory disease, and can irritate nose, throat, skin and eyes. Hardmetal products and tools should not be reground or sharpened without taking appropriate safety measures to contain dust and to prevent the inhalation of dust. Hardmetal products and tools may break or shatter in use. To avoid injury, use personal protective equipment, including eye protection.

10.5: Incompatible materials

None Known

10.6: Hazardous decomposition products

None Known

11: Toxicological Information

Under normal conditions of use, hardmetal products do not present a human health hazard. However, hardmetal dusts or fumes contain hazardous substances that may be inhaled or ingested or come into contact with the skin or the eyes. The toxicity section below relates to hardmetal dusts or fumes.

Cobalt - Tungsten Carbide: The NTP lists cobalt□tungsten carbide powders and hardmetals as reasonably anticipated to be human carcinogens

Tungsten Carbide: Dust may cause mechanical irritation to the eyes, skin and respiratory tract. Additional information is available at http://www.atsdr.cdc.gov/phs/phs.asp?id=804&tid=157.

Cobalt: Cobalt metal when inhaled is presumed to have carcinogenic potential for humans largely based on animal evidence. The IARC lists cobalt metal with tungsten carbide as Category 2A – probably carcinogenic to humans. Cobalt fumes or dusts may cause pulmonary, skin or eye irritation. Cobalt may be a sensitizing agent for the skin and respiratory system. Chronic exposure may affect the heart, pancreas, thyroid gland or bone marrow. Additional information regarding the hazards associated with cobalt metal powder is available at http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=64.

Nickel: 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 increased incidences 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 skin sensitizer. Additional information regarding nickel is available at http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=245&tid=44.

Routes of Likely Exposure to Hardmetal: The most relevant routes of potential exposure to workers would be the dermal (skin) and inhalation routes.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: In general, hardmetal dust may cause mechanical eye and skin irritation. Inhalation of dust may cause mild respiratory tract irritation.

Delayed and Immediate Effects as Well as Chronic Effects from Short- and Long-term Exposure: Immediate effects from short-term exposure: None known.

12: Ecological Information

Hardmetal products as provided do not present an environmental hazard.

12.1: Persistence and degradability

Not applicable.

12.2: Bioaccumulative potential

Not applicable.

12.3: Mobility in soil

Not applicable.

12.4: Results of PBT and vPvB assessment

Tungsten carbide, cobalt and nickel are inorganic substances, and therefore the PBT and vPvB assessment is not required.

12.5: Other adverse effects

None known

13: Disposal Considerations

Responsibility for proper waste disposal of hardmetal products is with the owner.
Owners are encouraged to take advantage of carbide recycling programs. Hardmetal products are valuable products that should be sent to an appropriate reclamation facility. If material cannot be sent to a reclamation facility, dispose of all waste products and containers in accordance with local, state/provincial, federal, and national regulations.

14: Transport Information

Hardmetal products are not classified or regulated.

15: Regulatory Information

15.1: Safety, health and environmental regulations/legislation specific for the product

EU Regulations: Hardmetal products do not contain substances of very high concern ("SVHC")

National Regulations (USA):

Occupational Safety and Health Act (OSHA):
Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

Toxic Substances Control Act ("TSCA"):
Components of this product are listed on the TSCA inventory

Superfund Amendments and Reauthorization Act ("SARA"):
Cobalt is subject to the requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986.

State Regulatory Information:
This product contains cobalt and/or nickel, which are listed in California Proposition 65 as known cancer-causing chemicals.

15.2: Chemical safety assessment - EU

Chemical safety reports ("CSR")/chemical safety assessments ("CSA") are not required for hardmetal products. CSRs/CSAs have been carried out on tungsten carbide, cobalt and nickel.

16: Other Information

Abbreviations:

ACGIH	American Conference of Industrial Hygienists
Carc	Carcinogenic
CAS	Chemical Abstracts Service
Cat	Category
CLP	Classification, Labelling and Packaging
EU	European Union
GHS	Globally Harmonized System
h	Hours
IARC	International Agency for Research on Cancer
m^3	Cubic meter
mg	Milligram(s)
NIOSH	National Institute for Occupational Safety and Health
No.	Number
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative and Toxic
RE	Repeated Exposure
Resp	Respiratory
Sens	Sensitizer
STOT	Specific Target Organ Toxicity
SVHC	Substance of Very High Concern
vPvV	very Persistendm very Bioaccumulative

User Responsibilities

This SIS provides information consistent with recommended applications of these products and anticipated activities involving the products. These products should not be modified, reground, or sharpened. It is the user's responsibility to identify and protect against health and safety hazards presented by modification of hardmetal products after manufacture. Individuals handling hardmetal should be informed of all relevant hazards and recommended safety precautions, and should have access to the information contained in this SIS.

Disclaimer

The information contained herein is based upon data provided by manufacturers and suppliers of raw materials used in the manufacture of hardmetal powders and products. The information is offered in good faith as accurate and correct, but no representations, guarantees, or warranties of any kind are made as to its accuracy or completeness, suitability for particular applications, hazards connected with the use of the products, or the results to be obtained from the use thereof. User assumes all risk and liability of any use or handling of any material beyond Sandvik's control. Variations in methods; conditions; equipment used to store, handle, or process the material; and hazards connected with the use of the hardmetal products are solely the responsibility of the user and remain at the user's sole discretion.

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