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Revision Number 1

1. Identification of the substance/preparation and of the Company/undertaking

Product Identifier

Product Type KMT - Hard metal articles, inserts, drills, mills
Material Master 3541484
Product name **C2**
Product code KA1019-9

Other means of identification

Synonyms Hard Metal, Cemented WC, Tungsten Carbide

Recommended use of the chemical and restrictions on use

Recommended Use Mining Tools. Construction Tools. Round Tools. Metalworking Tools. Metallurgical Products. Inserts. For use in industrial installations only.

Uses advised against Do not re-sharpen tools without using appropriate safety and extraction systems to avoid dust exposure. Return tools to WIDIA for reconditioning services. Do not re-sharpen tools without using appropriate safety and extraction systems to avoid dust exposure. Return tools to Kennametal for reconditioning services.

Details of the Supplier of the Safety Data Sheet

Emergency Telephone Number

Emergency Telephone Number CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
1-800-424-9300 (NORTH AMERICA)

NRC (National Response Center) USA, Poison Centres +1 800 222 1222
Canada, IWK Regional Poison Center +1 902 470 8161 or 1 800 565 8161

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2. Hazards Identification

Classification

As a sintered tool, exposure to high volumes of powder/dust is not anticipated under normal conditions and use. If tool chips, breaks, fragments or is reground, exposure to powder/dust may result in potential health effects.

Label Elements

Emergency Overview

Precautionary Statements - Prevention

Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Precautionary Statements - Response

IF exposed: Call a POISON CENTER or doctor/physician **Skin** If skin irritation or rash occurs: Get medical advice/attention.
Inhalation If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Appearance grey solid

Physical State solid

Odor none

Hazards not otherwise classified (HNOC)

OTHER INFORMATION

3. Composition/Information on Ingredients

Synonyms

Hard Metal, Cemented WC, Tungsten Carbide.

Chemical name	Formula	CAS-No	weight-%	GHS Classification
Tungsten carbide	WC	12070-12-1	> 50	
Cobalt	Co	7440-48-4	5 - 10	Acute Oral 4 (H302) Acute dust/mist 1 (H330) Eye damage 2 (H319) Resp. Sens. 1B (H334) Skin Sens. 1 (H317) Carc. 1B (H350i) Repr. tox 2 (H361f) Aquatic Acute 1 M=10(H400) Aquatic Chronic 1 M=1(H410)
Tantalum Carbide	TaC	12070-06-3	1 - 2.5	

* The exact percentage (concentration) of composition has been withheld as a trade secret.

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350i - May cause cancer by inhalation
H361f - Suspected of damaging fertility
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

4. First aid measures

FIRST AID MEASURES

General advice

If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye Contact

Keep eye wide open while rinsing. If symptoms persist, call a physician. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin contact

Consult a physician if necessary. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash off immediately with soap and plenty of water.

Inhalation	Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Oxygen or artificial respiration if needed. Keep victim warm and quiet. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Get medical attention.
Ingestion	Drink plenty of water. If symptoms persist, call a physician. Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting unless directed to do so by a physician.
Self-protection of the first aider	Self-protection of the first aider. Wear suitable gloves.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed Hives.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards arising from the chemical

Protective equipment and precautions for firefighters Use personal protective equipment as required

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions

Environmental precautions Avoid release to the environment.

Methods and material for containment and cleaning up Prevent further leakage or spillage if safe to do so. Collect in closed and suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Minimize dust generation and accumulation. Use personal protective equipment as required. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place.

Incompatible products (STRONG) OXIDIZER. 20 - Acids/bases.

Specific use(s) For use in industrial installations only.

8. Exposure Controls/Personal Protection

Control parameters

Chemical name	USA - ACGIH TLV	USA - OSHA PEL	USA - NIOSH IDLH	Argentina	Brazil
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Tungsten carbide	-	-	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³	
Cobalt	0.02 mg/m ³ TWA	0.1 mg/m ³ TWA (dust and fume)	20 mg/m ³ IDLH (dust and fume)	TWA: 0.02 mg/m ³	
Chemical name	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec	Canada - Manitoba
Tungsten carbide					5 mg/m ³ TWA (as W)
Cobalt	0.02 mg/m ³ TWA	0.02 mg/m ³ TWA	0.02 mg/m ³ TWA	0.02 mg/m ³ TWAEV	0.02 mg/m ³ TWA 0.02 mg/m ³ TWA (as Co)
Chemical name	Chile	Mexico OEL (TWA)	Peru	Uruguay	Venezuela
Tungsten carbide		-			STEL: 10 mg/m ³ TWA: 5 mg/m ³
Cobalt	TWA: 0.016 mg/m ³	0.1 mg/m ³ TWA LMPE-PPT (dust and fume, as Co)	0.02 mg/m ³ TWA	0.02 mg/m ³ TWA	TWA: 0.02 mg/m ³

NIOSH IDLH: Immediately Dangerous to Life or Health

Chemical name	Derived No Effect Level (DNEL)	Predicted No Effect Concentration (PNEC)
Tungsten carbide	6.2 mg/m ³ systemic inhalation	Tungsten 0.338 mg/l freshwater; 0.0338 mg/l marine water; 2.17 mg/kg soil; 11 mg/kg food
Cobalt	0.04 mg/m ³ long term local inhalation	2.36 µg Co/l (AF 3) marine water; 0.74 µg/l (AF 3) fresh water

Appropriate engineering controls

Engineering controls Showers
 Eyewash stations
 Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye Protection Wear safety glasses with side shields (or goggles).

Skin Protection Apron. Wear suitable protective clothing. Wear suitable gloves.

Hand Protection Protective gloves.

Hygiene Measures Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Biological standards

Chemical name	USA ACGIH -BEI	Argentina - Occupational Exposure Limits - Biological Exposure Indices (BEIs)	Chile - Occupational Exposure Limits - Biological Exposure Indices (BEIs)
Cobalt 7440-48-4	15 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (background); 1 µg/L Medium: blood Time: end of shift at end of workweek Parameter: Cobalt (background, semi-quantitative)	15 µg/L urine end of shift on the last day of workweek Co (Background); 1 µg/L blood end of shift on the last day of workweek Co (Background, semi-quantitative)	
Chemical name	Mexico - Occupational Exposure Limits - BEIs (IBE)	Venezuela - Biological Exposure Indices (BEIs)	...
Cobalt 7440-48-4	15 µg/L Medium: urine Time: end of shift at end of work week Parameter: Cobalt (background); 1 µg/L Medium: blood Time: end of shift at end of work week Parameter: Cobalt (background, semi-quantitative)	15 µg/L urine end of shift at end of workweek Cobalt (F); 1 µg/L urine end of shift at end of workweek Cobalt (F,Sc)	

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical State	solid	Appearance	grey solid
Odor	none	Odor Threshold	none
Melting point/freezing point	°C / °F	Boiling temperature / boiling range	°C / °F
Flash Point		Evaporation Rate	
Flammability (solid, gas)		Upper flammability limits	
Lower Flammability Limit		Water solubility	practically insoluble
Autoignition temperature		Kinematic viscosity	
Dynamic viscosity		Explosive properties	not applicable
Oxidizing properties	not applicable		

OTHER INFORMATION

VOC Content (%) Not Applicable

10. Stability and Reactivity

Reactivity	No data available
Chemical stability	Stable under normal conditions.
Possibility of Hazardous Reactions	None under normal processing.
Conditions to avoid	Extremes of temperature and direct sunlight.
incompatible materials	
Hazardous decomposition products	None known based on information supplied.

11. Toxicological Information

Information on likely routes of exposure

Eye Contact	Mild eye irritation.
Ingestion	Ingestion is not a likely route of exposure. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chemical name	Oral LD50	dermal LD50	Inhalation LC50
Tungsten carbide - 12070-12-1	> 2000 mg/kg bw (OECD 401)	> 2000 mg/kg bw (OECD 402)	> 5.3 mg/L (4h) (OECD 403)
Cobalt - 7440-48-4	550 mg/kg bw	>2000 mg/kg bw	0.05 mg/L

Information on toxicological effects

Chemical name	US ACGIH - Critical effects
Cobalt - 7440-48-4	asthma; myocardial effects; pulmonary function

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization	May cause sensitization of susceptible persons. May cause sensitization by inhalation and skin contact.
Carcinogenicity	This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B).

Chemical name	ACGIH	IARC	NTP	OSHA

Cobalt - 7440-48-4	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans	Group 2B - Possible Human Carcinogen	Not Listed	Not Listed
Chemical name	Chile	Argentina	Venezuela	Peru
Cobalt - 7440-48-4	A3 - Animal Carcinogen	A3 - Confirmed animal carcinogen with unknown relevance to humans	Present	

Chronic toxicity Repeated or prolonged skin contact with the unexposed coating may cause skin irritation and/or dermatitis and sensitization of susceptible persons. May produce an allergic reaction. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting. The mixture may be a skin sensitizer. It may also be a skin irritant and repeated contact may increase this effect. Listed as probable human carcinogen by IARC (Group 2A). Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Repeated contact may cause allergic reactions in very susceptible persons. Contains a known or suspected reproductive toxin.

Target organ effects respiratory system, Skin.

Numerical measures of toxicity - Product Information

mg/kg

12. Ecological Information

12.1. Ecotoxicity

Chemical name	Algae toxicity	Acute Fish toxicity	Toxicity to Microorganisms	Daphnia magna
Tungsten carbide 12070-12-1	Desmodesmus subspicatus (algae) 72-h EC50 > 1 mg/L (OECD 201)	96-h Lc50 > 1000 mg/L (OECD 203) Zebrafish		48-h EC50 > 1000 mg/L (OECD 202)
Cobalt 7440-48-4	EC50 - 270ug/L	NOEC - 100 mg/L - Cobalt Powder	Not available	LOEC - 5.6 mg/L, LC50 > 100 mg/L
Tantalum Carbide 12070-06-3		LC50 96h > 100 mg/l		

12.2 Persistence and degradability Product/Substance is inorganic. not applicable.

Bioaccumulation/Accumulation No information available.

12.6 Other adverse effects None known

13. Disposal Considerations

Waste treatment methods It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Waste from residues/unused products Reuse or recycle.

California Waste Status This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste Status
Cobalt - 7440-48-4	Toxic Ignitable

14. Transport Information

<u>DOT</u>	Not regulated
<u>TDG</u>	Not regulated
<u>MEX</u>	Not regulated
<u>ICAO / IATA-DGR</u>	Not regulated
<u>IMO / IMDG</u>	Not regulated

15. Regulatory Information

Chemical name	Bolivia - hazardous substances regulated under Bolivia's Environmental Regulations for the Industrial Manufacturing Sector
Cobalt - 7440-48-4	Present

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical name	CAS-No	weight-%	SARA 313 - Threshold Values %
Cobalt - 7440-48-4	7440-48-4	5 - 10	Present

SARA 311/312 Hazard Categories

Acute health hazard	yes
Chronic Health Hazard	yes
Fire Hazard	no
Sudden release of pressure hazard	no
Reactive Hazard	no

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:.

Chemical name	California - Proposition 65 - Carcinogens List	California - Proposition 65 - Developmental Toxicity	California - Proposition 65 - Reproductive Toxicity	California - 22 CCR - Toxic and Extremely Hazardous Carcinogenic Wastes
Cobalt - 7440-48-4	carcinogen, initial date 7/1/92 (powder)			

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Tungsten carbide - 12070-12-1	sn 1960		

Cobalt - 7440-48-4	sn 0520	Present	Environmental hazard (fume) Present
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U.S. EPA Label information

CANADA

WHMIS Statement

In the form of a pressed and sintered item, this is a manufactured article and is not a "controlled product" under WHMIS.

Chemical name	WHMIS Classifications of Components
Cobalt - 7440-48-4	D2A, D2B

16. Other Information

<u>NFPA</u>	Health hazard 2	Flammability 0	Instability 0	Physical and Chemical Hazards -
<u>HMIS</u>	Health hazard 2	Flammability 0	Physical hazards 0	Personal precautions X

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Revision Note No information available

Disclaimer

Kennametal urges each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific SDSs, we are not and cannot be responsible for SDS's obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us for the most current version.

End of Safety Data Sheet