Product Safety Information

Print date 2019-01-08 **Revision date** 2019-01-08 **Revision number** 1

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier

Product Type	Hard metal articles, inserts, drills, mills
Material Master	1804829, 1805013,
Product Name	**KC7140 article**
Product Code	KA1035-6
Type	article

Other means of identification

Synonyms	Hard Metal, Cemented WC, Tungsten Carbide

Recommended use of the chemical and restrictions on use

Recommended use	Service life, hardmetal articles, Industrial use, Professional use, Mining Tools, Construction Tools, Round Tools, Metalworking Tools, Inserts, For use in industrial installations only
Uses advised against	Do no re-sharpen tools without using appropriate safety and extraction systems to avoid dust exposure. Return tools to Kennametal for reconditioning services. Consumer use.

Details of the supplier of the safety data sheet

Supplier Identification	USA: Kennametal Inc. 1662 MacMillan Park Drive Fort Mill, SC 29707 ftmill.service@kennametal.com Canada: Kennametal Inc. Toronto.service@kennametal.com Phone 800.835.3668
Prepared By	Kennametal Inc. 1600 Technology Way Latrobe, PA 15650, USA
E-mail	k-corp-product.safety@kennametal.com
Company Emergency Phone Number	Kennametal Security, Latrobe, US, PA +1-724-539-5610 (english)

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

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 @20°C** Solid **Odor** None

Hazards Not Otherwise Classified (HNOC)

Warning Fragmentation hazard. Cutting tools and holders may fragment in use. Always wear safety equipment and keep machine guards in places. Do no re-sharpen tools without using appropriate safety and extraction systems to avoid dust exposure. Return tools to Kennametal for reconditioning services. Use personal protective equipment as required

Other hazards Breathing hazard. Wet or dry grinding of cutting tools may produce hazardous dust or mist. Use ventilation control and respiratory protection.

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	Not classified
Cobalt	Co	7440-48-4	10 - 25	Acute Oral 4 (H302) Acute dust/mist 1 (H330) Eye damage 2 (H319) Resp. Sens. 1B (H334) Skin Sens. 1 (H317) Carc. 1B (H350) Inhalation Repr. tox 2 (H361)Fertility Aquatic Acute 1 M=10(H400) Aquatic Chronic 1 M=1(H410)
Tantalum Carbide	TaC	12070-06-3	5 - 10	Not classified
Titanium Carbide	TiC	12070-08-5	3 - 5	Not classified
Niobium Carbide	NbC/Nb_2C	12069-94-2	3 - 5	Not classified

* 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

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

Component information

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions	Use personal protective equipment as required.
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	Breathing hazard. Wet or dry grinding of cutting tools may produce hazardous dust or mist. Use ventilation control and respiratory protection. 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	None known based on information supplied.
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
Tungsten carbide	3 mg/m³ TWA (respirable particulate matter, as W); TLV basis: lung damage	-	-	TWA: 5 mg/m³ STEL: 10 mg/m³	-
Cobalt	0.02 mg/m³ TWA	0.1 mg/m³ TWA (dust and fume)	20 mg/m³ IDLH (dust and fume)	TWA: 0.02 mg/m³	-
Chemical Name	**Canada - Alberta**	**Canada - British Columbia**	**Canada - Ontario**	**Canada - Quebec**	**Canada - Manitoba**
Tungsten carbide	-	-	-	-	5 mg/m³ TWA (as W) 0.005 mg/m³ TWA (thoracic particulate matter, as Co)
Cobalt	0.02 mg/m³ TWA	0.02 mg/m³ TWA	0.02 mg/m³ TWA	0.02 mg/m³ TWAEV	0.02 mg/m³ TWA 0.02 mg/m³ TWA (as Co) 0.005 mg/m³ TWA (thoracic particulate matter, as Co)
Chemical Name	**Chile**	**Colombia - OEL**	**Mexico OEL (TWA)**	**Nicaragua**	**Peru**
Tungsten carbide	-	5 mg/m³ TWA (as W) 0.005 mg/m³ TWA (thoracic fraction, as Co) 10 mg/m³ STEL (as W)	-	5 mg/m³ TWA (as W) 0.005 mg/m³ TWA (thoracic particulate matter, as Co)	-
Cobalt	TWA: 0.016 mg/m³	0.02 mg/m³ TWA 0.02 mg/m³ TWA (as Co) 0.005 mg/m³ TWA (thoracic fraction, as Co)	0.1 mg/m³ TWA LMPE-PPT (dust and fume, as Co)	0.02 mg/m³ TWA 0.02 mg/m³ TWA (as Co) 0.005 mg/m³ TWA (thoracic particulate matter, as Co)	0.02 mg/m³ TWA
Chemical Name	**Uruguay**	**Venezuela**	**...**	**...**	**...**
Tungsten carbide	-	STEL: 10 mg/m³ TWA: 5 mg/m³	-	-	-
Cobalt	0.02 mg/m³ TWA	TWA: 0.02 mg/m³	-	-	-

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/m³ 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/m³ 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 Long sleeved clothing.

Hand protection Protective gloves.

Respiratory Protection If exposure limits are likely to be exceeded or if irritation or other symptoms are

experienced, NIOSH/MSHA or EN 136 approved respiratory protection should be worn.

Hygiene Measures

Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday.

Biological standards

Chemical Name	USA ACGIH -BEI	Argentina - Occupational Exposure Limits - Biological Exposure Indices (BEIs)	Chile - Occupational Exposure Limits - Biological Exposure Indices (BEIs)
Cobalt	15 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (nonspecific)	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	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

9.1 Information on basic physical and chemical properties

Physical State @20°C	Solid	**appearance**	grey, Solid
Odor	None	**odor threshold**	None
Boiling temperature / boiling range	No Data Available	**Flash Point**	Not applicable
Water Solubility	Practically insoluble	**Decomposition temperature**	UNKNOWN
Explosive Properties	Not applicable Hardmetal WC-Co (50µm); Lower explosion limit 750 g/cm³, max explosion pressure 4.3 bar, Kst value 16 bar*m/s St1, ignition temperature 500°C, minimum ignition energy < 10 000 mJ		

9.2. Other information

VOC content (%) Not applicable

Component information

Chemical Name	Mol. Weight	Water Solub.	Vap. Press.	Vap. Dens.	pH Val.	Autoign. Temp.	Evap. Rate	Boil. Temp.
Cobalt	58.93 g/mol	-	0.00007 hPa at 1050 °C	-	-	-	-	2870 °C
Chemical Name	**Density VALUE**	**Melt. Temp.**	**flash point**	**Water Sol.**	**Bulk Dens.**	**Odor**	**State**	**Color**
Tungsten carbide	15.63 g/cm3 at 18 °C	-	-	-	<9.2 kg/m³ (ASTM B329)	-	-	-
Cobalt	8.85 - 8.9 g/cm3 at 20 °C	<1495 °C	-	insoluble	-	-	-	-

10. STABILITY AND REACTIVITY

Reactivity Stable under normal conditions

Chemical Stability Stable under normal conditions.
Possibility of hazardous reactions None under normal processing.
Conditions to Avoid
Incompatible Materials
Hazardous Decomposition Products None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

INHALATION Long-term exposure to WC-Co is reported to be associated with occupational asthma and a fibrotic lung condition referred to as hardmetal disease. Breathing hazard. Wet or dry grinding of cutting tools may produce hazardous dust or mist. Use ventilation control and respiratory protection.

Skin Contact Avoid contact with skin.

INGESTION Ingestion is not a likely route of exposure.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Tungsten carbide	> 2000 mg/kg bw (OECD 401)	> 2000 mg/kg bw (OECD 402)	> 5.3 mg/L (4h) (OECD 403)
Cobalt	550 mg/kg bw	>2000 mg/kg bw	0.05 mg/L

Information on Toxicological Effects

Chemical Name	US ACGIH - Critical effects
Cobalt	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: (National Toxicity Program)	OSHA
Tungsten carbide	A2 - Suspected Human Carcinogen	-	-	-
Cobalt	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans A2 - Suspected Human Carcinogen	Group 2B - Possible Human Carcinogen	Printed Long-Term and Short-Term Study Reports: Long-Term Studies 16 Male Rat - Clear Evidence; Female Rat - Clear Evidence; Male Mice - Clear Evidence; Female Mice - Clear Evidence (TR-581) Present (includes nanoparticles, listed under Cobalt and certain cobalt compounds) Present (see RoC monograph for specific cobalt compounds, listed under Cobalt and certain cobalt compounds)	Not Listed
Chemical Name	**Chile**	**Argentina**	**Venezula**	**Peru**

Cobalt	A3 - Animal Carcinogen	A3 - Confirmed animal carcinogen with unknown relevance to humans	Present	-

Chemical Name	Canada Alberta	Canada British Coloumbia	Canada Manitoba	Canada Quebec
Tungsten carbide	-	-	A2 Suspected Human Carcinogen	-
Cobalt	-	IARC Category 2B - Possible Human Carcinogen	A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans A2 Suspected Human Carcinogen	C3 carcinogen - effect detected in animals

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 no data available

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity May cause long lasting harmful effects to aquatic life.

Chemical Name	Algae Toxicity	Acute Fish Toxicity	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Tungsten carbide	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	LC50-144 ug/L (fresh water); LC50-24.1 µg/l (sea water); NOEC-4.9 µg/l (fresh water); NOEC-1.23 µg/l (sea water)	LC50-1.5 mg/l (fresh water); NOEC-351.4 mg/L	Not available	LC50-0.61 mg/l (fresh water); LC50-2.32 mg/l (sea water); NOEC-5.47 µg/L (fresh water); NOEC-206 µg/L (sea water)
Tantalum Carbide	-	LC50 96h > 100 mg/l	-	-
Niobium Carbide	-	LC50 96h > 100 mg/l	-	-

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

12.3 Bioaccumulative potential No information available.

12.5 Results of PBT and vPvB assessment The components in this formulation do not meet the criteria for classification as PBT or vPvB

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.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Cobalt	Present (total)	-	-	-

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	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT NOT REGULATED

TDG NOT REGULATED

MEX NOT REGULATED

IMO / IMDG NOT REGULATED

ICAO / IATA-DGR NOT REGULATED

15. REGULATORY INFORMATION

Chemical Name	TSCA
Tungsten carbide	Present
Cobalt	Present Effective 06/01/1987, Sunset 06/01/1997 Added 2012
Tantalum Carbide	Present
Titanium Carbide	Present
Niobium Carbide	Present
Chemical Name	**RCRA**
Cobalt	Present (total)
Chemical Name	**Bolivia - hazardous substances regulated under Bolivia's Environmental Regulations for the Industrial Manufacturing Sector**
Cobalt	Present
Chemical Name	**Bolivia - hazardous substances regulated under Bolivia's Environmental Regulations for the Industrial Manufacturing Sector**
Cobalt	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

Chemical Name	CAS-No	Weight-%	SARA 313 - Threshold Values %
Tungsten carbide	12070-12-1	> 50	-
Cobalt	7440-48-4	10 - 25	Present
Tantalum Carbide	12070-06-3	5 - 10	-
Titanium Carbide	12070-08-5	3 - 5	-
Niobium Carbide	12069-94-2	3 - 5	-

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	carcinogen, 7/1/1992 (powder)	-	-	-

California Prop. 65

Listed. Warning. This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm. Additional information available from:. www.P65Warnings.ca.gov.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Tungsten carbide	sn 1960	-	-
Cobalt	sn 0520	Present,	Environmental hazard; Present (fume) Present

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	D2A, D2B

16. OTHER INFORMATION

Global Automotive Declarable Substance List Classifications

Chemical Name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thresholds
Cobalt	Declarable Substance (FI)	0.1 %

NFPA **Health Hazard** 2 **flammability** 0 **Instability** 0 **Physical and chemical hazards** -

HMIS **Health Hazard** 2 **flammability** 0 **Physical Hazards** 0

Prepared By Kennametal Inc. 1600 Technology Way Latrobe, PA 15650, USA

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Revision note This SDS has been revised in the following section(s)

Section 1: Identification: Product identifier and chemical identity
Section 8: Exposure controls and personal protection
Section 11: Toxicological information
Section 15: Regulatory information
Section 16: Any other relevant information

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