

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

Product Identifier	Stellite - Welding rods
Product Type	Stellite - Coated rod (electrode)
Welding wire	Welding wire
Product name	Stellite 6 Rod/Wire/Electrode/Part
Product code	KSYC1002-1
Other means of identification	
Synonyms	No information available
Recommended use of the chemical and restrictions on use	
Recommended Use	Wear and Corrosion Resistant Welding Consumable For use in industrial installations only.
Details of the Supplier of the Safety Data Sheet	
Emergency Telephone Number	CHEMTREC: +1-703-527-3887 (INTERNATIONAL)
Emergency Telephone Number	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
Prepared by	Kennametal Inc. 1600 Technology Way Latrobe, PA 15650, USA
E-mail	k-corp-product.safety@kennametal.com

## 2. Hazards Identification

## Classification

This product does not require a hazard communication label as it does not pose a hazard in the form delivered. Hazards can occur while using this product. Please read and follow the instructions of this SDS.

Acute toxicity: Oral	Category 4
Respiratory sensitization	Category 1B
Skin sensitization	Category 1
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 2

## Label Elements

## Emergency Overview

## DANGER

## Hazard Statements

Harmful if swallowed. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause cancer by inhalation. May cause an allergic skin reaction. Causes damage to organs through prolonged or repeated exposure. May cause long lasting harmful effects to aquatic life. Heating may cause a fire.

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Silicon Metal	Si	7440-21-3	1 - 2.5	Not classified
Carbon	C	7440-44-0	1 - 2.5	Not classified
Manganese	Mn	7439-96-5	0.1 - 1	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 H350 - May cause cancer by inhalation H351 - Suspected of causing cancer if inhaled H361D - Suspected of damaging fertility H373 - Causes damage to the following organs through prolonged or repeated exposure if inhaled: Lungs H400 - Very toxic to aquatic life H410 - Very toxic to aquatic life with long lasting effects H412 - Harmful to aquatic life with long lasting effects
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## 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. Get medical attention. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.
Ingestion	Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician. Rinse mouth.
Self-protection of the first aider	Self-protection of the first aider. Wear suitable gloves.

## Most important symptoms and effects, both acute and delayed

4.2. Most important symptoms and effects, both acute and delayed  
May cause allergy or asthma symptoms or breathing difficulties if inhaled. CNS and psychiatric effects, Parkinson-like symptoms. Languor, sleepiness and weakness in legs. A stolid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be exposed to any process in which this product is used.

## Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically. May cause sensitization by inhalation and skin contact. May cause sensitization of susceptible persons.
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## 5. Fire-fighting measures

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## Precautionary Statements - Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wear respiratory protection. In case of inadequate ventilation wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

## Precautionary Statements - Response

If exposed or concerned: Get medical advice/attention. Specific treatment is urgent (see supplemental first aid instructions on this label). **Eyes:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. **Skin:** IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. **Inhalation:** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. **Ingestion:** IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

## Precautionary Statements - Storage

Store locked up. Store in a well-ventilated place. Keep container tightly closed.

## Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Appearance: solid metallic

Physical State: @20°C: solid

Odor: odorless

## Hazards not otherwise classified (HNOC)

## Welding Hazards

CAUTION: Welding will create fumes which may be toxic. If welding is performed on plated or coated materials such as galvanneal or painted steel, excessive fume may be produced which contains additional hazardous components, and may result in metal fume fever or other health effects. The product and work surface will be hot during and after welding. Electric shock can kill. Arc Rays can injure eyes and burn skin.

## Other Hazards

May be harmful if swallowed. Causes mild skin irritation. Very toxic to aquatic life with long lasting effects. Very toxic to aquatic life.

## Unknown Aquatic Toxicity

37.65% of the mixture consists of ingredient(s) of unknown toxicity

## 3. Composition/Information on Ingredients

Chemical name	Formula	CAS No	weight-%	GHS Classification
Cobalt	Co	7440-48-4	> 50	Acute Oral 4 (H302) Acute Ingested 1 (H330) Eye damage 2 (H319) Resp. Sens. 1B (H334) Skin Sens. 1 (H317) Carc. 1B (H350) Repr. tox 2 (H361D) Aquatic Acute 1 M=100/400 Aquatic Chronic 1 M=10/410
Chromium	Cr	7440-47-3	26 - 50	Not classified
Tungsten	W	7440-33-7	3 - 5	Not classified
Nickel	Ni	7440-02-0	1 - 2.5	STOT RE 1 (H373) S.7 Carc. 2 (H351) S.7 Skin Sens. 1 (H317) S.7 Aquatic Chronic 3 (H412)
Iron	Fe	7439-89-6	1 - 2.5	Not classified

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## Suitable extinguishing media

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

## Extinguishing media which must not be used for safety reasons

none

## Specific hazards arising from the chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. May cause sensitization by inhalation and skin contact. Carbon oxides. Use personal protective equipment as required. In the event of fire, wear self-contained breathing apparatus.

## Protective equipment and precautions for firefighters

## Component Information

Chemical name	Extinguishing Media for Fires (Suitable)	Extinguishing Media for Fires (Unsuitable)
Chromium	Use extinguishing media appropriate for surrounding fire.	Do not use carbon dioxide, which may form an explosive mixture with powdered chromium.
Silicon Metal	SMALL FIRES: Dry chemical, sand, water spray, foam. LARGE FIRES: Water spray, fog, foam	

## 6. Accidental release measures

## Personal precautions, protective equipment and emergency procedures

Personal precautions	See Section 12 for additional Ecological Information.
Environmental precautions	Avoid release to the environment.
Methods and material for containment and cleaning up	Pick up and transfer to properly labeled containers. Avoid generation of dust. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust.

## 7. Handling and Storage

Precautions for safe handling	Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Avoid contact with eyes, skin and clothing. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray.
Conditions for safe storage, including any incompatibilities	
Storage	Keep out of the reach of children. Keep container tightly closed in a dry and well-ventilated place. Keep containers tightly closed in a cool, well-ventilated place.
Incompatible products	None known based on information supplied.
Specific use(s)	Welding.

## 8. Exposure Controls/Personal Protection

## Control parameters

Chemical name	USA - ACGIH TLV	USA - OSHA PEL	USA - NIOSH IDLH	Argentina	Brazil
Cobalt	0.02 mg/m <sup>3</sup> TWA	0.1 mg/m <sup>3</sup> TWA (dust and fume)	20 mg/m <sup>3</sup> IDLH (dust and fume)	TWA: 0.02 mg/m <sup>3</sup>	-
Chromium	0.5 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA	250 mg/m <sup>3</sup> IDLH	TWA: 0.5 mg/m <sup>3</sup>	-
Tungsten	10 mg/m <sup>3</sup> STEL	-	-	TWA: 5 mg/m <sup>3</sup>	-
Nickel	5 mg/m <sup>3</sup> TWA	-	-	STEL: 10 mg/m <sup>3</sup>	-
Silicon Metal	1.5 mg/m <sup>3</sup> TWA (inhalable fraction)	1 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> IDLH	TWA: 1.5 mg/m <sup>3</sup>	-
		15 mg/m <sup>3</sup> TWA (total)	Not Listed	TWA: 10 mg/m <sup>3</sup>	-

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		dust; 5 mg/m <sup>3</sup> TWA (respirable fraction)			
Manganese	0.02 mg/m <sup>3</sup> TWA (respirable fraction); 0.1 mg/m <sup>3</sup> TWA (inhalable fraction)		500 mg/m <sup>3</sup> IDLH	TWA: 0.2 mg/m <sup>3</sup>	5 mg/m <sup>3</sup> TWA LT (dust); 1 mg/m <sup>3</sup> TWA LT (fume)
Chemical name	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec	Canada - Manitoba
Cobalt	0.02 mg/m <sup>3</sup> TWA	0.02 mg/m <sup>3</sup> TWA	0.02 mg/m <sup>3</sup> TWA	0.02 mg/m <sup>3</sup> TWA	0.02 mg/m <sup>3</sup> TWA
Chromium	0.5 mg/m <sup>3</sup> TWA	0.5 mg/m <sup>3</sup> TWA	0.5 mg/m <sup>3</sup> TWA	0.5 mg/m <sup>3</sup> TWA	0.5 mg/m <sup>3</sup> TWA
Tungsten	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWA
Nickel	1.5 mg/m <sup>3</sup> TWA	0.05 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA	1.5 mg/m <sup>3</sup> TWA
Silicon Metal	10 mg/m <sup>3</sup> TWA (total dust); 3 mg/m <sup>3</sup> TWA (respirable fraction)	10 mg/m <sup>3</sup> TWA (total dust)	10 mg/m <sup>3</sup> TWA (total dust)	10 mg/m <sup>3</sup> TWA (total dust)	10 mg/m <sup>3</sup> TWA (total dust)
Manganese	0.2 mg/m <sup>3</sup> TWA	0.2 mg/m <sup>3</sup> TWA	0.2 mg/m <sup>3</sup> TWA	0.2 mg/m <sup>3</sup> TWA	0.2 mg/m <sup>3</sup> TWA
Chemical name	Chile	Mexico OEL (TWA)	Peru	Uruguay	Venezuela
Cobalt	TWA: 0.016 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup> TWA LMPE-PPT (dust and fume, as Co)	0.02 mg/m <sup>3</sup> TWA	0.02 mg/m <sup>3</sup> TWA	TWA: 0.02 mg/m <sup>3</sup>
Chromium	TWA: 0.4 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup> TWA LMPE-PPT		0.5 mg/m <sup>3</sup> TWA	TWA: 0.5 mg/m <sup>3</sup>
Tungsten			5 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> STEL	STEL: 10 mg/m <sup>3</sup>
Nickel	TWA: 0.8 mg/m <sup>3</sup>	1 mg/m <sup>3</sup> TWA LMPE-PPT	1.5 mg/m <sup>3</sup> TWA	1.5 mg/m <sup>3</sup> TWA	TWA: 1.5 mg/m <sup>3</sup>
Silicon Metal		10 mg/m <sup>3</sup> TWA LMPE-PPT (inhalable fraction)	10 mg/m <sup>3</sup> TWA (inhalable fraction); 4 mg/m <sup>3</sup> TWA (respirable fraction); 5 mg/m <sup>3</sup> TWA (welding fumes)		TWA: 10 mg/m <sup>3</sup>
Carbon		2 mg/m <sup>3</sup> TWA LMPE-PPT (dust)			
Manganese	TWA: 0.8 mg/m <sup>3</sup> ; TWA: 4 mg/m <sup>3</sup>	0.2 mg/m <sup>3</sup> TWA LMPE-PPT; 1 mg/m <sup>3</sup> TWA LMPE-PPT (fume, as Mn)	0.2 ppm TWA	0.02 mg/m <sup>3</sup> TWA (respirable fraction); 0.1 mg/m <sup>3</sup> TWA (inhalable fraction)	TWA: 0.2 mg/m <sup>3</sup>

Other Exposure Guidelines Hexavalent Chrome may be formed during welding

Chemical name	Derived No Effect Level (DNEL)	Predicted No Effect Concentration (PNEC)
Cobalt	0.04 mg/m <sup>3</sup> long term local inhalation	2.36 µg Co/L (AF 3) marine water; 0.74 µg/L (AF 3) fresh water
Chromium	0.5 mg/m <sup>3</sup> local inhalation	
Tungsten	5.6 mg/m <sup>3</sup> systemic inhalation	Tungsten 0.338 mg/L freshwater; 0.0338 mg/L marine water; 2.17 mg/kg soil; 11 mg/kg food
Nickel	4 mg/m <sup>3</sup> short term local inhalation; 0.05 mg/m <sup>3</sup> long term local inhalation	0.0035-0.0218 mg/L freshwater; 0.0023 mg/L marine water
Iron	3 mg/m <sup>3</sup> local inhalation	
Carbon	10 mg/m <sup>3</sup> systemic inhalation	

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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
Chromium	51.99 g/mol	-	0.00000001 hPa at 1700 °C	-	-	-	-	2642 °C
Tungsten	183.84 g/mol	-	1 mmHg at 1810 °C	-	-	-	-	-
Nickel	58.69 g/mol	-	0.000001 hPa at 25 °C	-	-	>100 °C	-	-
Iron	55.84 g/mol	-	1 mmHg at 1292 °C	-	-	300 - 500 °C	-	-
Silicon Metal	28.08 g/mol	<1 mg/L	-	-	-	-	-	-
Carbon	12.01 g/mol	-	-	-	-	-	-	-
Manganese	54.93 g/mol	-	1 mmHg at 1292 °C	-	-	-	-	-
Chemical name	Density VALUE	Melt. Temp.	Flash Point	Water Sol.	Bulk Dens.	Odor	State	color
Cobalt	8.85 - 8.9 g/cm <sup>3</sup> at 20 °C	<1495 °C	-	soluble	-	-	-	-
Chromium	7.19 g/cm <sup>3</sup> at 20 °C	1900 °C	-	insoluble	-	-	-	grey
Tungsten	19.3 g/cm <sup>3</sup> at 20 °C	3422 °C	-	slightly soluble	2100 - 9000 kg/m <sup>3</sup>	-	-	-
Nickel	8.9 g/cm <sup>3</sup> at 25 °C	-	-	insoluble	-	-	-	-
Iron	7.87 g/cm <sup>3</sup> at 25 °C	1539 °C	-	insoluble	3000 - 4000 kg/m <sup>3</sup>	-	-	-
Silicon Metal	2.33 g/cm <sup>3</sup> at 25 °C	1410 °C	-	-	-	-	-	dark grey, dark brown
Carbon	-	>3500 °C	-	insoluble	0.25 - 0.75 kg/m <sup>3</sup> at 20 °C	-	-	-

## 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	Keep away from sources of heat (e.g. hot surfaces), sparks and open flames
Incompatible materials	Acids: Strong oxidizing agents
Hazardous decomposition products	Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

## 11. Toxicological Information

Information on likely routes of exposure	
Product Information	
Inhalation	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Eye Contact	May cause eye irritation with susceptible persons.
Skin contact	Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Prolonged contact may cause redness and irritation. Prolonged skin contact may irritate the skin and produce dermatitis. May cause sensitization by skin contact.

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Manganese	0.2 mg/m <sup>3</sup> systemic inhalation		
Appropriate engineering controls			
Engineering controls	Showers Eyewash stations Ventilation systems.		
Individual protection measures, such as personal protective equipment			
Eye Protection	Use suitable eye protection to guard against the effects of welding. Wear safety glasses with side shields (or goggles). Eye-irrigation bottle with pure water.		
Skin Protection	Long sleeved clothing. Wear flame resistant/retardant clothing. Apron. Wear suitable protective clothing. Wear suitable gloves.		
Hand Protection	Protective gloves. The product and work surface will be hot during and after welding. Ensure adequate protection is in place to stop individuals from burning themselves.		
Respiratory protection	Use only with adequate ventilation. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.		
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended.		
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 (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 (BEI)	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)	

## 9.1 Information on basic physical and chemical properties

Physical State @20°C	solid	Appearance	solid, metallic
Odor	odorless	Melting point / melting range	1265-1395 °C / 2340-2540 °F
flash point	not applicable	Vapor Pressure	not applicable
Vapor Density	not applicable	Water solubility	insoluble in water
Dynamic viscosity	solid	Density VALUE	8.44 g/cm <sup>3</sup>

## 9.2. Other Information

VOC Content (%)	Not Applicable
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Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion may cause irritation to mucous membranes.		
Chemical name	Oral LD50	dermal LD50	Inhalation LC50
Cobalt	500 mg/kg bw	>2000 mg/kg bw	0.05 mg/L
Chromium	LD50 >5000 mg/kg bw	Data waiting - Study Scientifically Unjustified	LC50 >5.41 mg/L air (analytical)
Tungsten	LD50 >2000 mg/kg bw	LD50 >2000 mg/kg bw	LC50 >5.4 mg/L air
Nickel	>3000 mg/kg bw	Data waiting - Other justification	NOAEC >>10.2 mg/L air
Iron	>984 mg/kg (Rat)		
Silicon Metal	LD50 >3160 mg/kg bw	LD50 >5000 mg/kg bw	Acutely Non-Toxic
Carbon	>10000 mg/kg (Rat)		
Manganese	LD50 >2000 mg/kg bw	Data waiting - Study Scientifically Unjustified	LC50 >5.14 mg/L air (analytical)

Information on toxicological effects

Chemical name	US ACGIH - Critical effects
Cobalt	asthma, myocardial effects, pulmonary function
Chromium	skin and upper respiratory tract irritation
Tungsten	lower respiratory tract irritation
Nickel	dermatitis, pneumoconiosis
Manganese	CNS impairment

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

Irritation Repeated exposure may cause skin dryness or cracking.

Sensitization May cause sensitization of susceptible persons.

MUTAGENIC EFFECTS None known.

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
Cobalt	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans	Group 2B - Possible Human Carcinogen	Post Peer Review Technical Reports in Progress 16 (Long-Term Studies). Male Rat - Clear Evidence; Female Rat - Clear Evidence; Male Mice - Clear Evidence; Female Mice - Clear Evidence (TR-581)	Not Listed
Chromium	A4 - Not Classifiable as a Human Carcinogen	Group 3 - Not Classified as a Human Carcinogen	Long-Term Exposure Studies in Progress 5 (including suboxide fibers)	Not Listed
Tungsten			Short-Term Exposure Studies in Progress 17	
Nickel	A5 - Not Suspected as a Human Carcinogen	Nickel Compounds: Group 1 - Known Human Carcinogen - Nickel, Metallic & Alloy; Group 2B - Possible Human Carcinogen	Reasonably Anticipated To Be A Human Carcinogen	Not Listed
Chemical name	Chile	Argentina	Venezuela	Peru
Cobalt	A3 - Animal Carcinogen	A3 - Confirmed animal carcinogen with unknown relevance to humans	Present	

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Chromium	A4 - Not Classifiable as a Human Carcinogen	A4 - Not Classifiable as a Human Carcinogen	A4 - Not Classifiable as a Carcinogen in Humans	
Nickel	A1 - Confirmed Human Carcinogen	A5 - Not Suspected as a human carcinogen	A5 - Not an Alleged Carcinogen in Humans	A1 - Confirmed Human Carcinogen

**Reproductive toxicity****Chronic toxicity**

Contains a known or suspected reproductive toxin. Prolonged exposure may cause chronic effects, CNS and psychiatric effects, Parkinson-like symptoms, Languor, sleepiness and weakness in legs. A solid masklike appearance of face, emotional disturbances such as uncontrollable laughter and spastic gait with tendency to fall in walking and findings in more advanced cases. Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Repeated or prolonged exposure may cause central nervous system damage. Contains a known or suspected reproductive toxin. 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).

**Target organ effects**

blood, central nervous system (CNS), Central Vascular System (CVS), Eyes, kidney, liver, Lungs, Nasal Cavities, respiratory system, Skin.

**Neurological effects**

Repeated or prolonged exposure may cause central nervous system damage. Prolonged or excessive exposure to manganese in dust or fume may cause irreversible central nervous system damage (Manganism). Symptoms resemble Parkinson's disease and include tremors, impaired speech, mask like face and impaired movement.

**Numerical measures of toxicity**

No data available

The following values are calculated based on chapter 3.1 of the GHS document  
ATEmix (oral) 508 mg/kg  
ATEmix (dermal) 5 mg/kg  
ATEmix (inhalation-gas) 10 mg/l

**12. Ecological Information**

This product contains a chemical which is listed as a marine pollutant according to DOT.

**12.1. Ecotoxicity**

96% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

**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 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. It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations.

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**Waste from residues/unused products**

Reuse or recycle. Recover or recycle if possible. Dispose of in accordance with local regulations.

**Contaminated packaging**

Empty containers should be taken to an approved waste handling site for recycling or disposal.

**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
Chromium	Toxic Corrosive Ignitable
Nickel	Toxic Ignitable
Manganese	Ignitable

**14. Transport Information**

Chemical name	U.S. - DOT Reportable Quantities	DOT Marine Pollutant	DOT Severe Marine pollutant
Chromium	5000 lbs RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches)); 2270 kg RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches))		
Nickel	100 lbs RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches)); 45.4 kg RQ (The RQ for these hazardous substances is limited to those pieces of the metal having a diameter smaller than 100 µm (0.004 inches))		

**IDG**

Not regulated

**MEX**

Not regulated

**IMO / IMDG**

Not regulated

**ICAO / IATA-DGR**

Not regulated

**15. Regulatory Information**

Chemical name	YSKA
Cobalt	Present Effective 06/01/1987, Sunset 06/01/1997
Chromium	Present
Tungsten	Present
Nickel	Present
Iron	Present
Silicon Metal	Present
Carbon	Present
Manganese	Present

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

YSKA - 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 %
Cobalt	7440-48-4	≤ 50	Present
Chromium	7440-47-3	25 - 50	Present
Tungsten	7440-33-7	3 - 5	-
Nickel	7440-02-0	1 - 2.5	-
Iron	7439-89-6	1 - 2.5	-
Silicon Metal	7440-21-3	1 - 2.5	-
Carbon	7440-44-0	1 - 2.5	-
Manganese	7439-96-5	0.1 - 1	-

**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 contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Chromium	Not Applicable	Present	Present	Not Applicable
Nickel	Not Applicable	Present	Present	Not Applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Chromium	5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)	5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
Nickel	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

**U.S. State Regulations**

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**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 CFR - Toxic and Extremely Hazardous Carcinogenic Wastes
Cobalt	carcinogen, initial date 7/1/92 (powder)			
Nickel	carcinogen, initial date 12/1/89 (metallic)			

**U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Cobalt	sn 0520	Present	Environmental hazard (fume)
Chromium	sn 0432	Carcinogen, Extraordinarily hazardous	Environmental hazard; Special hazardous substance
Tungsten	sn 1959	Present	Present
Nickel	sn 1341 (dust and fume)	Carcinogen, Extraordinarily hazardous	Environmental hazard; Special hazardous substance
Silicon Metal	sn 3125 (powder)	Present (dust, exempt when encapsulated or if particulates are not present and cannot be substantially generated through use of the product)	Present
Manganese	sn 1155 (dust and fume)	Present	Environmental hazard

**CANADA****WHMIS Statement**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

Chemical name	WHMIS Classifications of Components
Cobalt	D2A, D2B
Chromium	Uncontrolled product according to WHMIS classification criteria
Tungsten	Uncontrolled product according to WHMIS classification criteria
Nickel	D2A, D2B, B6, D2A (Raney)
Iron	Uncontrolled product according to WHMIS classification criteria
Silicon Metal	B4
Carbon	Uncontrolled product according to WHMIS classification criteria
Manganese	D2A (including powder)

**16. Other Information**

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thresholds
Cobalt	Declarable Substance (F)	0.1 %
Nickel	Declarable Substance (F)	0.1 %

**NEPA**

Health hazard 2

Flammability 0

Instability 0

Physical and Chemical Hazards -

**HMIS**

Health hazard 2

Flammability 0

Physical hazards 0

Personal precautions -

**Issuing Date**

2015-02-06

**Revision Date**

2015-03-06

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## Safety Data Sheet

### 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