

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product Form : Mixture
Product Name : Tungsten Composite Rods

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Speciality metal

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**Company**

Speciality Metals (Pty) Ltd.
P O Box 4522, Edenvale,
1610, South Africa / 53 Main Road,
Eastleigh, Edenvale, 1609
+27114524255

www.specialitymetals.co.za

info@specialitymetals.co.za

1.4. Emergency telephone number

Emergency number : +27114524255

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification According to Regulation (EC) No. 1272/2008 [CLP]**

Skin Sens. 1 H317
Carc. 2 H351
STOT RE 1 H372
Aquatic Chronic 2 H411

Full text of hazard classes and H-statements : see section 16

2.2. Label elements**Labelling According to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



Signal word (CLP) : Danger

Hazard statements (CLP) : H317 - May cause an allergic skin reaction.
H351 - Suspected of causing cancer (Inhalation).
H372 - Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, and eye protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see section 4 on this SDS).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.

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P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Other hazards not contributing to the classification

: Under normal conditions of use and handling in the solid form, harmful substances cannot be released, nor is the solid metal piece considered flammable. Much of the information provided in this SDS is for situations of use in which hazardous exposures may occur, such as in welding applications or for metals in powder form. Dust generated from processing may present a dust explosion hazard. Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath. Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification According to Regulation (EC) No. 1272/2008 [CLP]
Tungsten carbide	(CAS-No.) 12070-12-1 (EC-No.) 235-123-0	60 - 80	Not classified
Copper	(CAS-No.) 7440-50-8 (EC-No.) 231-159-6	10 - 25	Not classified
Zinc	(CAS-No.) 7440-66-6 (EC-No.) 231-175-3 (EC Index-No.) 030-001-01-9	5 - 20	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Nickel	(CAS-No.) 7440-02-0 (EC-No.) 231-111-4 (EC Index-No.) 028-002-00-7	1 - 10	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372
Silicon	(CAS-No.) 7440-21-3 (EC-No.) 231-130-8;240-968-3	0,04 - 2,5	Not classified

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : For particulates and dust: Using proper respiratory protection, move the exposed person to fresh air at once. Encourage exposed person to cough, spit out, and blow nose to remove dust. Immediately call a poison center, physician, or emergency medical service.
- First-aid measures after skin contact : For particulates and dust: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation/rash develops or persists. Removal of solidified molten material from skin requires medical assistance.
- First-aid measures after eye contact : For particulates and dust: Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for at least 15 minutes. Obtain medical attention. Removal of solidified molten material from the eyes requires medical assistance.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

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

Symptoms/effects	: Skin sensitisation. Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure.
Symptoms/effects after inhalation	: During processing, the most significant route of exposure is by the inhalation (breathing) of dust or fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur.
Symptoms/effects after skin contact	: May cause an allergic skin reaction. Contact with hot, molten metal will cause thermal burns.
Symptoms/effects after eye contact	: Risk of thermal burns on contact with molten product.
Symptoms/effects after ingestion	: Ingestion may cause adverse effects.
Chronic symptoms	: If dust is generated, repeated exposure through inhalation may cause cancer or lung disease.

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

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use Class D extinguishing agents on dusts, fines or molten metal. Use coarse water spray on chips and turnings.
Unsuitable extinguishing media	: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Combustible Dust.
Explosion hazard	: Dust explosion hazard in air.
Reactivity	: Hazardous reactions will not occur under normal conditions.
Hazardous decomposition products in case of fire	: Metal oxides.

5.3. Advice for firefighters

Precautionary measures fire	: Exercise caution when fighting any chemical fire.
Firefighting instructions	: Use water spray or fog for cooling exposed containers.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses. Risk of dust explosion.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Do not get in eyes, on skin, or on clothing. Do not breathe dust. Avoid generating dust. Remove ignition sources. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
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6.1.1. For non-emergency personnel

Protective equipment	: Use appropriate personal protective equipment (PPE).
Emergency procedures	: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Collect spillage.

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6.3. Methods and material for containment and cleaning up

- For containment : Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Avoid generation of dust during clean-up of spills.
- Methods for cleaning up : Clean up spills immediately and dispose of waste safely. Contact competent authorities after a spill. Use explosion proof vacuum during cleanup, with appropriate filter. Do not mix with other materials. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant. Use only non-sparking tools.

6.4. Reference to other sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations.
- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Obtain special instructions before use. Do not get in eyes, on skin, or on clothing. Handle empty containers with care because they may still present a hazard. Avoid creating or spreading dust. Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations. Avoid creating or spreading dust. Use explosion-proof electrical, ventilating, lighting equipment. Proper grounding procedures to avoid static electricity should be followed.
- Storage conditions : Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store locked up/in a secure area.
- Incompatible materials : Strong acids, strong bases, strong oxidizers. Alkalis. Acetylene.

7.3. Specific end use(s)

Speciality metal

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper (7440-50-8)		
Austria	MAK (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,1 mg/m ³ (respirable fraction, smoke)
Austria	MAK Short time value (mg/m ³)	4 mg/m ³ (inhalable fraction) 0,4 mg/m ³ (respirable fraction, smoke)
Belgium	Limit value (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Bulgaria	OEL TWA (mg/m ³)	0,1 mg/m ³ (metal vapor)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	2 mg/m ³ (dust)
France	VLE (mg/m ³)	2 mg/m ³ (dust)
France	VME (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL TWA (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust)
Greece	OEL STEL (mg/m ³)	2 mg/m ³ (dust)
USA ACGIH	ACGIH TWA (mg/m ³)	0,2 mg/m ³ (fume)
Latvia	OEL TWA (mg/m ³)	0,5 mg/m ³

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Copper (7440-50-8)		
Spain	VLA-ED (mg/m ³)	0,1 mg/m ³ (see UNE EN 481:1995 on workplace atmospheres-respirable fraction)
Switzerland	KZGW (mg/m ³)	0,2 mg/m ³ (inhalable dust)
Switzerland	MAK (mg/m ³)	0,1 mg/m ³ (inhalable dust)
Netherlands	Grenswaarde TGG 8H (mg/m ³)	0,1 mg/m ³ (inhalable dust)
United Kingdom	WEL TWA (mg/m ³)	1 mg/m ³ (dust and mists) 0,2 mg/m ³ (fume)
United Kingdom	WEL STEL (mg/m ³)	0,6 mg/m ³ (calculated-fume) 2 mg/m ³ (dust and mist)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³ (dust) 0,1 mg/m ³ (fume)
Denmark	Grænsevædi (8 timer) (mg/m ³)	1 mg/m ³ (dust and powder) 0,1 mg/m ³ (fume)
Estonia	OEL TWA (mg/m ³)	1 mg/m ³ (total dust) 0,2 mg/m ³ (respirable dust)
Finland	HTP-arvo (8h) (mg/m ³)	0,02 mg/m ³ (respirable dust)
Hungary	AK-érték	1 mg/m ³ 0,1 mg/m ³ (fume)
Hungary	CK-érték	4 mg/m ³ 0,4 mg/m ³ (fume)
Ireland	OEL (8 hours ref) (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dusts and mists)
Ireland	OEL (15 min ref) (mg/m ³)	2 mg/m ³ (dusts and mists) 0,6 mg/m ³ (calculated-fume)
Lithuania	IPRV (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,2 mg/m ³ (respirable fraction)
Norway	Grenseverdier (AN) (mg/m ³)	0,1 mg/m ³ (fume) 1 mg/m ³ (dust)
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	0,3 mg/m ³ (value calculated-fume) 2 mg/m ³ (value calculated-dust)
Poland	NDS (mg/m ³)	0,2 mg/m ³
Romania	OEL TWA (mg/m ³)	0,5 mg/m ³ (dust)
Romania	OEL STEL (mg/m ³)	0,2 mg/m ³ (fume) 1,5 mg/m ³ (dust)
Slovakia	NPHV (priemerná) (mg/m ³)	1 mg/m ³ (inhalable fraction) 0,2 mg/m ³ (respirable fraction)
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,01 mg/m ³ (respirable fraction)
Portugal	OEL TWA (mg/m ³)	0,2 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Nickel (7440-02-0)		
Austria	TRK Daily average value (mg/m ³)	0,5 mg/m ³ (dust, inhalable fraction)
Austria	OEL chemical category (AT)	Group A1 Carcinogen dust, Respiratory sensitizer dust, Skin sensitizer
Belgium	Limit value (mg/m ³)	1 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	0,05 mg/m ³
Bulgaria	Bulgaria - BLV	45 µg/l Parameter: Nickel - Medium: urine - Sampling time: after several work shifts
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	0,5 mg/m ³
Croatia	OEL chemical category (HR)	Carcinogen Category 1A

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Nickel (7440-02-0)		
Croatia	Croatia - BLV	10 µg/l Parameter: Nickel - Medium: plasma - Sampling time: at the end of the work shift 8 µg/g creatinine Parameter: Nickel - Medium: urine - Sampling time: at the end of the work shift (calculated on the average Creatinine value of 1.2 g/L urine)
France	VME (mg/m ³)	1 mg/m ³ 1 mg/m ³ (metal gratings)
France	OEL chemical category (FR)	Carcinogen category 2
Germany	Occupational exposure limit value (mg/m ³)	0,006 mg/m ³
Germany	Chemical category	Skin sensitization
Greece	OEL TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	1,5 mg/m ³ (inhalable particulate matter)
Latvia	OEL TWA (mg/m ³)	0,05 mg/m ³
Spain	VLA-ED (mg/m ³)	1 mg/m ³ (manufacturing, commercialization and use restrictions according to REACH)
Spain	OEL chemical category (ES)	Sensitizer
Switzerland	MAK (mg/m ³)	0,5 mg/m ³ (inhalable dust)
Switzerland	OEL chemical category (CH)	Category C2 carcinogen, Sensitizer
Switzerland	Switzerland - BLV	45 µg/l Parameter: Nickel - Medium: urine - Sampling time: end of shift, and after several shifts (for long-term exposures)
United Kingdom	WEL TWA (mg/m ³)	0,5 mg/m ³
United Kingdom	WEL STEL (mg/m ³)	1,5 mg/m ³ (calculated)
United Kingdom	WEL chemical category	Potential for cutaneous absorption
Czech Republic	Expoziční limity (PEL) (mg/m ³)	0,5 mg/m ³ (respirable fraction of aerosol)
Czech Republic	OEL chemical category (CZ)	Sensitizer
Czech Republic	Czech Republic - BLV	0,077 µmol/mmol Creatinine Parameter: Nickel - Medium: urine - Sampling time: discretionary 0,04 mg/g creatinine Parameter: Nickel - Medium: urine - Sampling time: discretionary
Denmark	Grænsevædi (8 timer) (mg/m ³)	0,05 mg/m ³ (dust and powder)
Estonia	OEL TWA (mg/m ³)	0,5 mg/m ³
Estonia	OEL chemical category (ET)	Sensitizer
Finland	HTP-arvo (8h) (mg/m ³)	0,01 mg/m ³ (respirable dust)
Finland	Finland - BLV	0,1 µmol/l Parameter: Nickel - Medium: urine - Sampling time: after the shift after a working week or exposure period
Hungary	MK-érték	0,1 mg/m ³
Hungary	OEL chemical category (HU)	Carcinogenic substance, Sensitizer
Ireland	OEL (8 hours ref) (mg/m ³)	0,5 mg/m ³
Ireland	OEL (15 min ref) (mg/m ³)	1,5 mg/m ³ (calculated)
Ireland	OEL chemical category (IE)	Sensitizer
Lithuania	IPRV (mg/m ³)	0,5 mg/m ³
Lithuania	OEL chemical category (LT)	Carcinogen, Sensitizer
Norway	Grenseverdi (AN) (mg/m ³)	0,05 mg/m ³
Norway	Grenseverdi (Korttidsverdi) (mg/m ³)	0,15 mg/m ³ (value calculated)
Norway	OEL chemical category (NO)	Carcinogen, Potential reproductive hazard, Sensitizing substance

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Nickel (7440-02-0)		
Poland	NDS (mg/m ³)	0,25 mg/m ³
Romania	OEL TWA (mg/m ³)	0,1 mg/m ³
Romania	OEL STEL (mg/m ³)	0,5 mg/m ³
Romania	OEL chemical category (RO)	C2
Romania	Romania - BLV	3 µg/l Parameter: Nickel - Medium: urine - Sampling time: end of shift (SCOEL)
Slovakia	Slovakia - BLV	0,03 mg/l Parameter: Nickel - Medium: blood - Sampling time: end of exposure or work shift
Slovenia	OEL TWA (mg/m ³)	0,006 mg/m ³ (respirable fraction)
Slovenia	OEL STEL (mg/m ³)	0,048 mg/m ³ (respirable fraction)
Slovenia	OEL chemical category (SI)	Category 2
Sweden	nivågränsvärde (NVG) (mg/m ³)	0,5 mg/m ³ (total dust)
Sweden	OEL chemical category (SE)	Sensitizer
Portugal	OEL TWA (mg/m ³)	1,5 mg/m ³ (inhalable fraction)
Portugal	OEL chemical category (PT)	A5 - Not Suspected as a Human Carcinogen
Zinc (7440-66-6)		
Slovakia	NPHV (priemerná) (mg/m ³)	0,1 mg/m ³ (respirable fraction) 2 mg/m ³ (inhalable fraction)
Silicon (7440-21-3)		
Belgium	Limit value (mg/m ³)	10 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	10 mg/m ³ (total dust, inhalable particles) 4 mg/m ³ (respirable dust)
France	VME (mg/m ³)	10 mg/m ³
Greece	OEL TWA (mg/m ³)	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
Switzerland	MAK (mg/m ³)	3 mg/m ³ (respirable dust)
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
United Kingdom	WEL STEL (mg/m ³)	12 mg/m ³ (calculated-respirable dust)
United Kingdom	WEL STEL (ppm)	30 ppm (calculated-inhalable dust)
Denmark	Grænsevædi (8 timer) (mg/m ³)	10 mg/m ³
Estonia	OEL TWA (mg/m ³)	10 mg/m ³ 5 mg/m ³ (respirable dust)
Ireland	OEL (8 hours ref) (mg/m ³)	4 mg/m ³ (respirable dust) 10 mg/m ³ (total inhalable dust)
Ireland	OEL (15 min ref) (mg/m ³)	30 mg/m ³ (calculated-respirable dust) 12 mg/m ³ (calculated-total inhalable dust)
Norway	Grænseverdier (AN) (mg/m ³)	10 mg/m ³ (equal to the limit value for Nuisance dust)
Norway	Grænseverdier (Korttidsverdi) (mg/m ³)	20 mg/m ³ (equal to the limit value for Nuisance dust)
Tungsten carbide (12070-12-1)		
Latvia	OEL TWA (mg/m ³)	6 mg/m ³
Finland	HTP-arvo (8h) (mg/m ³)	5 mg/m ³

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8.2. Exposure controls

Appropriate engineering controls : For particulates and dust: Suitable eye/body wash equipment should be available in the vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for protective clothing : Chemically resistant materials and fabrics.
Hand protection : Wear protective gloves.
Eye and Face Protection : Chemical safety goggles.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection : If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other information : When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Colour : Dark grey
Odour : Odourless
Odour threshold : No data available
pH : No data available
Evaporation rate : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : 907 °C (1664,6 °F)
Flash point : No data available
Auto-ignition temperature : 480 °C (896 °F)
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : Water: Insoluble
Partition coefficient: n-octanol/water : No data available
Viscosity : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

Hazardous reactions will not occur under normal conditions.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight, extremely high or low temperatures, and incompatible materials. Sparks, heat, open flame and other sources of ignition. Dust accumulation (to minimize explosion hazard).

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizers. Alkalis. Acetylene.

10.6. Hazardous decomposition products

None expected under normal conditions of use.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)

Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
LC50 inhalation rat (mg/l)	> 10,2 mg/l (Exposure time: 1 h)
Silicon (7440-21-3)	
LD50 oral rat	3160 mg/kg

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met)

Serious eye damage/irritation : Not classified (Based on available data, the classification criteria are not met)

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)

Carcinogenicity : Suspected of causing cancer.

Nickel (7440-02-0)	
IARC group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)

STOT-repeated exposure : Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

Symptoms/Injuries After Inhalation : During processing, the most significant route of exposure is by the inhalation (breathing) of dust or fumes. If fumes are inhaled, they can cause a condition commonly known as metal fume fever with symptoms which resemble influenza; Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur.

Symptoms/Injuries After Skin Contact : May cause an allergic skin reaction. Contact with hot, molten metal will cause thermal burns.

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Symptoms/Injuries After Eye Contact	: Risk of thermal burns on contact with molten product.
Symptoms/Injuries After Ingestion	: Ingestion may cause adverse effects.
Chronic Symptoms	: If dust is generated, repeated exposure through inhalation may cause cancer or lung disease.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

Nickel (7440-02-0)	
LC50 fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	15,3 mg/l
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
Zinc (7440-66-6)	
LC50 fish 1	2,16 - 3,05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	0,139 - 0,908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 fish 2	0,211 - 0,269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])
ErC50 (algae)	0,15 mg/l

12.2. Persistence and degradability

Tungsten Composite Rods	
Persistence and degradability	May cause long-term adverse effects in the environment.
Copper (7440-50-8)	
Persistence and degradability	Not readily biodegradable.

12.3. Bioaccumulative potential

Tungsten Composite Rods	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations	: Dispose of contents/container in accordance with local, regional, national, and international regulations.
Ecology - waste materials	: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: Transport information

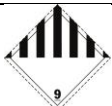

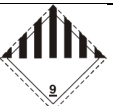
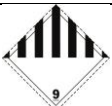
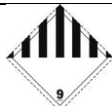
The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued. In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3077	3077	3077	3077	3077
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,	Environmentally hazardous substance,	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

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According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

ADR	IMDG	IATA	ADN	RID
N.O.S. (CONTAINS ZINC)	N.O.S. (CONTAINS ZINC)	solid, n.o.s. (CONTAINS ZINC)	N.O.S. (CONTAINS ZINC)	N.O.S. (CONTAINS ZINC)
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes

14.6. Special precautions for user

No additional information available

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

27. Nickel and its compounds	Nickel
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Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Copper (7440-50-8)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Nickel (7440-02-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Zinc (7440-66-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Silicon (7440-21-3)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Tungsten carbide (12070-12-1)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Date of Preparation or Latest Revision : 16/06/2020

Data sources : Information and data obtained and used in the authoring of this safety data sheet could come from database subscriptions, official government regulatory body websites, product/ingredient manufacturer or supplier specific information, and/or resources that include substance specific data and classifications according to GHS or their subsequent adoption of GHS.

Other information : According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Full Text of H- and EUH-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2

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According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Carc. 2	Carcinogenicity, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Indication of Changes No additional information available

Abbreviations and Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists
ADN – European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR – European Agreement Concerning the International Carriage of Dangerous Goods by Road
ATE - Acute Toxicity Estimate
BCF - Bioconcentration Factor
BEI - Biological Exposure Indices (BEI)
BOD – Biochemical Oxygen Demand
CAS No. - Chemical Abstracts Service Number
CLP – Classification, Labeling and Packaging Regulation (EC) No 1272/2008
COD – Chemical Oxygen Demand
EC – European Community
EC50 - Median Effective Concentration
EEC – European Economic Community
EINECS – European Inventory of Existing Commercial Chemical Substances
EmS-No. (Fire) - IMDG Emergency Schedule Fire
EmS-No. (Spillage) - IMDG Emergency Schedule Spillage
EU – European Union
ErC50 - EC50 in Terms of Reduction Growth Rate
GHS – Globally Harmonized System of Classification and Labeling of Chemicals
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IBC Code - International Bulk Chemical Code
IMDG - International Maritime Dangerous Goods
IPRV - Ilgalaikio Poveikio Ribinis Dydis
IOELV – Indicative Occupational Exposure Limit Value
LC50 - Median Lethal Concentration
LD50 - Median Lethal Dose
LOAEL - Lowest Observed Adverse Effect Level
LOEC - Lowest-Observed-Effect Concentration
Log Koc - Soil Organic Carbon-water Partitioning Coefficient
Log Kow - Octanol/water Partition Coefficient
Log Pow - Ratio of the equilibrium concentration (C) of a dissolved substance in a two-phase system consisting of two largely immiscible solvents, in this case octanol and water
MAK – Maximum Workplace Concentration/Maximum Permissible Concentration
MARPOL - International Convention for the Prevention of Pollution
EU GHS SDS

NDS - Najwyższe Dopuszczalne Stezenie
NDSCh - Najwyższe Dopuszczalne Stezenie Chwilowe
NDSP - Najwyższe Dopuszczalne Stezenie Pulapowe
NOAEL - No-Observed Adverse Effect Level
NOEC - No-Observed Effect Concentration
NRD - Nevirsytinas Ribinis Dydis
NTP – National Toxicology Program
OEL - Occupational Exposure Limits
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
pH – Potential Hydrogen
REACH – Registration, Evaluation, Authorisation, and Restriction of Chemicals
RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail
SADT - Self Accelerating Decomposition Temperature
SDS - Safety Data Sheet
STEL - Short Term Exposure Limit
STOT - Specific Target Organ Toxicity
TA-Luft - Technische Anleitung zur Reinhaltung der Luft
TEL TRK – Technical Guidance Concentrations
ThOD – Theoretical Oxygen Demand
TLM - Median Tolerance Limit
TLV - Threshold Limit Value
TPRD - Trumpalaikio Poveikio Ribinis Dydis
TRGS 510 - Technische Regel für Gefahrstoffe 510 - Lagerung von Gefahrstoffen in ortsbeweglichen Behältern
TRGS 552 – Technische Regeln für Gefahrstoffe - N-Nitrosamine
TRGS 900 - Technische Regel für Gefahrstoffe 900 – Arbeitsplatzgrenzwerte
TRGS 903 - Technische Regel für Gefahrstoffe 903 - Biologische Grenzwerte
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average
VOC – Volatile Organic Compounds
VLA-EC - Valor Límite Ambiental Exposición de Corta Duración
VLA-ED - Valor Límite Ambiental Exposición Diaria
VLE – Valeur Limite D'exposition
VME – Valeur Limite De Moyenne Exposition
vPvB - Very Persistent and Very Bioaccumulative
WEL – Workplace Exposure Limit
WGK - Wassergefährdungsklasse

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.