



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name

• **JWW®**

Synonyms

• Anti-Seize; Lubricant; Sealant; Thread Compound

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

Relevant identified use(s)

• Anti-Seize, Lubricant, Sealant, Tool Joint/Drill Collar Compound

1.3 Details of the supplier of the safety data sheet

Manufacturer

• Topco Oilsite Products Ltd.
Bay 7, 3401 - 19th Street N.E.
Calgary, Alberta T2E 6S8
Canada
www.topcooilsite.com
msds@topcooilsite.com

Telephone (General) • 403-219-0255

1.4 Emergency telephone number

Manufacturer

• 403-219-0255

Poison & Drug Information Service (Alberta Health Services)

• 1-800-332-1414

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 2015/830]

2.1 Classification of the substance or mixture

CLP

• Carcinogenicity 1A - H350i
Specific Target Organ Toxicity Repeated Exposure 1 - H372
Hazardous to the aquatic environment Acute 1 - H400
Hazardous to the aquatic environment Chronic 1 - H410

2.2 Label Elements

CLP

DANGER



- Hazard statements**
- H350i - May cause cancer by inhalation.
 - 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

Precautionary statements

- Prevention**
- 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 thoroughly after handling.
 - P270 - Do not eat, drink or smoke when using this product.
 - P273 - Avoid release to the environment.
 - P280 - Wear protective gloves/protective clothing/eye protection/face protection.

- Response**
- P308+P313 - IF exposed or concerned: Get medical advice/attention.
 - P314 - Get medical advice/attention if you feel unwell.
 - P391 - Collect spillage.

- Storage/Disposal**
- P405 - Store locked up.
 - P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other Hazards

CLP

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

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UN GHS Revision 4

According to: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS): Fourth Revised Edition

2.1 Classification of the substance or mixture

UN GHS

- Carcinogenicity 1A
- Specific Target Organ Toxicity Repeated Exposure 1
- Hazardous to the aquatic environment Acute 1
- Hazardous to the aquatic environment Chronic 1

2.2 Label elements

UN GHS

DANGER



- Hazard statements**
- May cause cancer.
 - Causes damage to organs through prolonged or repeated exposure.
 - Very toxic to aquatic life
 - Very toxic to aquatic life with long lasting effects

Precautionary statements

- Prevention**
- Obtain special instructions before use.
 - Do not handle until all safety precautions have been read and understood.
 - Do not breathe dust.
 - Avoid release to the environment.
 - Do not eat, drink or smoke when using this product.
 - Wash thoroughly after handling.
 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response**
- IF exposed or concerned: Get medical advice/attention.
 - Get medical advice/attention if you feel unwell.
 - Collect spillage.

- Storage/Disposal**
- Store locked up.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

UN GHS

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain
- According to the Globally Harmonized System for Classification and Labeling (GHS) this product is considered hazardous
-

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

- OSHA HCS 2012**
- Carcinogenicity 1A
 - Specific Target Organ Toxicity Repeated Exposure 1
 - Hazards Not Otherwise Classified - Health Hazards - Metal fume fever

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements** • May cause cancer.
Causes damage to organs through prolonged or repeated exposure.
- Precautionary statements**
- Prevention** • Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
- Response** • IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.
- Storage/Disposal** • Store locked up.
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

- OSHA HCS 2012** • Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS 2015

2.1 Classification of the substance or mixture

- WHMIS 2015** • Carcinogenicity 1A
Specific Target Organ Toxicity Repeated Exposure 1
Health Hazards Not Otherwise Classified 1

2.2 Label elements

WHMIS 2015

DANGER



- Hazard statements** • May cause cancer.
Causes damage to organs through prolonged or repeated exposure.
Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain

Precautionary statements

- Prevention** • Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust.

Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Wear protective gloves/protective clothing/eye protection/face protection.

Response • IF exposed or concerned: Get medical advice/attention.
 Get medical advice/attention if you feel unwell.

Storage/Disposal • Store locked up.
 Dispose of content and/or container in accordance with local, regional,
 national, and/or international regulations.

2.3 Other hazards

WHMIS 2015 • In Canada, the product mentioned above is considered hazardous under the
 Workplace Hazardous Materials Information System (WHMIS).

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Section 3 - Composition/Information on Ingredients

3.1 Substances

• Material does not meet the criteria of a substance.

3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Crystalline silica	CAS: 14808-60-7 EC Number: 238-878-4	42.5% TO 82.5%	NDA	EU CLP: Carc. 1A, H350i; STOT RE 1 (Lungs/Inhl), H372 UN GHS Revision 4: Carc. 1A; STOT RE 1 (Lungs/Inhl) OSHA HCS 2012: Carc. 1A; STOT RE 1 (Lungs/Inhl) WHMIS 2015: Carc. 1A; STOT RE 1 (Lungs/Inhl)	NDA
Zinc powder, stabilized	CAS: 7440-66-6 EC Number: 231-175-3	10% TO 25%	NDA	EU CLP: Annex VI, Table 3.1: Aquatic Acute 1, H400; Aquatic Chronic 1, H410 UN GHS Revision 4: Skin Irrit. 3; Aquatic Acute 1; Aquatic Chronic 1 OSHA HCS 2012: Comb. Dust; Hazard Not Otherwise Classified - Health Hazard - Metal fume fever WHMIS 2015: Comb. Dust; Hazard Not Otherwise Classified - Health Hazard - Metal fume fever	NDA
Graphite	CAS: 7782-42-5 EC Number: 231-955-3	5% TO 20%	NDA	EU CLP: STOT RE 1 (Lungs / Inhl), H372 UN GHS Revision 4: STOT RE 1 (Lungs / Inhl) OSHA HCS 2012: Comb. Dust; STOT RE 1 (Lungs / Inhl) WHMIS 2015: Comb. Dust; STOT RE 1 (Lungs / Inhl)	NDA

Talc	CAS: 14807-96-6 EC Number: 238-877-9	2.5% TO 10%	NDA	EU CLP: STOT RE 1 (Lungs / Inhl), H372 UN GHS Revision 4: Skin Irrit. 3; STOT RE 1 (Lungs / Inhl) OSHA HCS 2012: STOT RE 1 (Lungs / Inhl) WHMIS 2015: STOT RE 1 (Lungs / Inhl)	NDA
Asphalt	CAS: 8052-42-4 EINECS: 232-490-9	2.975% TO 5.775%	Ingestion/Oral-Rat LD50 • >5000 mg/kg	EU CLP: Carc. 2, H351 (Dermal) UN GHS Revision 4: Carc. 2 (Dermal) OSHA HCS 2012: Carc. 2 (Dermal) WHMIS 2015: Carc. 2 (Dermal)	NDA
Copper oxide	CAS: 1317-38-0 EU Index: 029-016-00-6	< 2.5%	Ingestion/Oral-Rat LD50 • 470 mg/kg	EU CLP: Annex VI, Table 3.1: Aquatic Acute 1, H400 (M=100); Aquatic Chronic 1, H410 (M=100) UN GHS Revision 4: Acute Tox. 4 (Orl); Aquatic Acute 1 (M=10); Aquatic Chronic 1 (M=1) OSHA HCS 2012: Acute Tox. 4 (Orl); Hazard Not Otherwise Classified - Health Hazard - Metal Fume Fever WHMIS 2015: Acute Tox. 4 (Orl); Hazard Not Otherwise Classified - Health Hazard - Metal Fume Fever	NDA
Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	CAS: 68457-79-4 EINECS: 270-608-0	0.758625% TO 1.472625%	NDA	EU CLP: Not Classified UN GHS Revision 4: Acute Tox. 5 (Orl) OSHA HCS 2012: Not Classified WHMIS 2015: Not Classified	NDA

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See Section 16 for full text of H-statements.

Section 4 - First Aid Measures

4.1 Description of first aid measures

- Inhalation** • Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.
- Skin** • In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Get medical attention if symptoms occur.
- Eye** • In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. Get medical attention if symptoms occur.
- Ingestion** • Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician**
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media • In case of fire use media as appropriate for surrounding fire.

Unsuitable Extinguishing Media • None known.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards • The product itself does not burn.

Hazards

Hazardous Combustion Products • Hazardous decomposition products formed under fire conditions: Carbon oxides.

5.3 Advice for firefighters

- Structural firefighters' protective clothing will only provide limited protection.
Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions • Ventilate the area. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact.

Emergency Procedures • Keep unauthorized personnel away. Stay upwind.

6.2 Environmental precautions

- Avoid run off to waterways and sewers.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures • Carefully shovel or sweep up spilled material and place in suitable container.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling • Use only with adequate ventilation. Use good safety and industrial hygiene practices. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe dust. Avoid contact with skin, eyes, and clothing. Do not eat, drink or smoke when using this product. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage • Keep container tightly closed. Store in a cool, dry, well-ventilated place.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Argentina	Australia	Canada Alberta	Canada British Columbia
Talc (14807-96-6)	TWAs	2 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable particulate matter)	2 mg/m3 TWA [CMP] (respirable fraction, particulate matter containing no asbestos and less than 1% crystalline silica)	2.5 mg/m3 TWA (containing no asbestos fibers)	2 mg/m3 TWA (respirable particulate)	2 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate)
Copper oxide	TWAs	1 mg/m3 TWA (dust and mist, as Cu) <i>as Copper compounds</i>	Not established	Not established	Not established	Not established
Asphalt (8052-42-4)	TWAs	0.5 mg/m3 TWA (fume, inhalable particulate matter, as benzene-soluble aerosol)	0.5 mg/m3 TWA [CMP] (Bitumen, inhalable fraction, as soluble aerosol in benzene)	5 mg/m3 TWA (fume)	5 mg/m3 TWA (Petroleum; Bitumen, fume)	0.5 mg/m3 TWA (inhalable fume, as Benzene-soluble aerosol)
Graphite	TWAs	2 mg/m3 TWA (all forms except graphite fibres, respirable particulate matter)	2 mg/m3 TWA [CMP] (all forms except fibres, respirable fraction)	3 mg/m3 TWA (containing no asbestos and <1% crystalline silica; all forms except fibres; natural and synthetic, respirable dust)	2 mg/m3 TWA (all forms except Graphite fibres, respirable)	2 mg/m3 TWA (all forms except Graphite fibres, respirable)
Crystalline silica (14808-60-7)	TWAs	0.025 mg/m3 TWA (respirable particulate matter)	0.05 mg/m3 TWA [CMP] (respirable fraction)	0.1 mg/m3 TWA (respirable dust)	0.025 mg/m3 TWA (respirable particulate)	0.025 mg/m3 TWA (respirable)
Exposure Limits/Guidelines (Con't.)						
	Result	Canada Manitoba	Canada New Brunswick	Canada Northwest Territories	Canada Nova Scotia	Canada Nunavut
Talc (14807-96-6)	TWAs	2 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate matter)	2 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable fraction)	2 mg/m3 TWA (respirable fraction)	2 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate matter)	2 mg/m3 TWA (respirable fraction)
Copper oxide	TWAs	1 mg/m3 TWA (dust and mist, as Cu) <i>as Copper compounds</i>	Not established	Not established	1 mg/m3 TWA (dust and mist, as Cu) <i>as Copper compounds</i>	Not established

Asphalt (8052-42-4)	TWAs	0.5 mg/m3 TWA (fume, inhalable particulate matter, as Benzene soluble aerosol)	5 mg/m3 TWA (petroleum fumes)	0.5 mg/m3 TWA (Bitumen, fume, as Benzene soluble aerosol (inhalable fraction))	0.5 mg/m3 TWA (fume, inhalable particulate matter, as Benzene soluble aerosol)	0.5 mg/m3 TWA (Bitumen, fume, as Benzene soluble aerosol (inhalable fraction))
	STELs	Not established	Not established	1.5 mg/m3 STEL (Bitumen, fume, as Benzene soluble aerosol (inhalable fraction))	Not established	1.5 mg/m3 STEL (Bitumen, fume, as Benzene soluble aerosol (inhalable fraction))
Graphite	TWAs	2 mg/m3 TWA (all forms except Graphite fibres, respirable particulate matter)	2 mg/m3 TWA (all forms except graphite fibres)	2 mg/m3 TWA (natural, all forms, except Graphite fibres, respirable fraction)	2 mg/m3 TWA (all forms except Graphite fibres, respirable particulate matter)	2 mg/m3 TWA (natural, all forms, except Graphite fibres, respirable fraction)
	STELs	Not established	Not established	4 mg/m3 STEL (natural, all forms, except Graphite fibres, respirable fraction)	Not established	4 mg/m3 STEL (natural, all forms, except Graphite fibres, respirable fraction)
Crystalline silica (14808-60-7)	TWAs	0.025 mg/m3 TWA (respirable particulate matter)	0.1 mg/m3 TWA (respirable fraction)	0.05 mg/m3 TWA (respirable fraction, listed under Silica - crystalline)	0.025 mg/m3 TWA (respirable particulate matter)	0.05 mg/m3 TWA (respirable fraction, listed under Silica - crystalline)
Exposure Limits/Guidelines (Con't.)						
	Result	Canada Ontario	Canada Quebec	Canada Saskatchewan	Canada Yukon	China
Talc (14807-96-6)	STELs	Not established	Not established	Not established	Not established	6 mg/m3 STEL (free SiO2 <10%, total dust); 2 mg/m3 STEL (free SiO2 <10%, respirable dust)
	TWAs	2 mg/m3 TWA (containing no Asbestos and <1% Crystalline silica, respirable)	3 mg/m3 TWAEV (respirable dust)	2 mg/m3 TWA (respirable fraction)	20 mppcf TWA	3 mg/m3 TWA (free SiO2 <10%, total dust); 1 mg/m3 TWA (free SiO2 <10%, respirable dust)
Asphalt (8052-42-4)	STELs	Not established	Not established	1.5 mg/m3 STEL (fume and inhalable fraction, as Benzene soluble aerosol)	10 mg/m3 STEL (fume)	12.5 mg/m3 STEL (fume, as Benzene soluble matter)
	TWAs	0.5 mg/m3 TWA (fume, inhalable, as Benzene- soluble aerosol)	5 mg/m3 TWAEV (fume)	0.5 mg/m3 TWA (fume and inhalable fraction, as Benzene soluble aerosol)	5 mg/m3 TWA (fume)	5 mg/m3 TWA (fume, as Benzene soluble matter)
Graphite	STELs	Not established	Not established	4 mg/m3 STEL (natural, except Graphite fibres, respirable fraction)	Not established	8 mg/m3 STEL (total dust); 4 mg/m3 STEL (respirable dust)
	TWAs	2 mg/m3 TWA (except Graphite fibres, respirable)	2 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline)	2 mg/m3 TWA (natural, except Graphite fibres, respirable fraction)	20 mppcf TWA; 30 mppcf TWA (synthetic); 10	4 mg/m3 TWA (total dust); 2 mg/m3 TWA (respirable dust)

			silica, except Graphite fibres, respirable dust)		mg/m3 TWA (synthetic)	
Crystalline silica (14808-60-7)	STELs	Not established	Not established	Not established	Not established	2 mg/m3 STEL (containing 10 - 50% free SiO2, total dust); 1.4 mg/m3 STEL (containing 50 - 80% free SiO2, total dust); 1 mg/m3 STEL (containing >80% free SiO2, total dust); 1.4 mg/m3 STEL (containing 10 - 50% free SiO2, respirable dust); 0.6 mg/m3 STEL (containing 50 - 80% free SiO2, respirable dust); 0.4 mg/m3 STEL (containing >80% free SiO2, respirable dust)
	TWAs	0.10 mg/m3 TWA (designated substances regulation, respirable, listed under Silica, crystalline)	0.1 mg/m3 TWAEV (respirable dust)	0.05 mg/m3 TWA (respirable fraction, listed under Silica - crystalline (Trydimite removed))	300 particle/mL TWA (listed under Silica - Quartz, crystalline)	0.7 mg/m3 TWA (containing 50 - 80% free SiO2, total dust); 0.3 mg/m3 TWA (containing 50 - 80% free SiO2, respirable dust); 1 mg/m3 TWA (containing 10 - 50% free SiO2, total dust); 0.7 mg/m3 TWA (containing 10 - 50% free SiO2, respirable dust); 0.5 mg/m3 TWA (containing >80% free SiO2, total dust); 0.2 mg/m3 TWA (containing >80% free SiO2, respirable dust)
Exposure Limits/Guidelines (Con't.)						
	Result	France	Germany DFG	India	Indonesia	Israel
Talc (14807-96-6)	TWAs	Not established	Not established	Not established	2 mg/m3 TWA (not containing fiber Asbestos, use NAB asbestos for talc containing fiber asbestos, respirable particulate)	4 mg/m3 TWA (airborne dust no otherwise classified); 2 mg/m3 TWA (particulate matter containing no Asbestos and <1% crystalline silica, respirable fraction)

Copper oxide	TWAs	Not established	Not established	Not established	Not established	1 mg/m ³ TWA (dust and mist, as Cu) <i>as Copper compounds</i>
Asphalt (8052-42-4)	TWAs	Not established	Not established	Not established	0.5 mg/m ³ TWA (soluble aerosol, fume)	0.5 mg/m ³ TWA (fume, inhalable fraction, as benzene soluble aerosol)
Graphite (7782-42-5)	TWAs	2 mg/m ³ TWA [VME] (alveolar fraction)	Not established	Not established	2 mg/m ³ TWA	2 mg/m ³ TWA (respirable fraction, all forms except graphite fibers)
	MAKs	Not established	1.5 mg/m ³ TWA MAK (respirable fraction); 4 mg/m ³ TWA MAK (inhalable fraction)	Not established	Not established	Not established
Zinc powder, stabilized (7440-66-6)	Ceilings	Not established	0.4 mg/m ³ Peak (respirable fraction); 4 mg/m ³ Peak (inhalable fraction)	Not established	Not established	Not established
	MAKs	Not established	0.1 mg/m ³ TWA MAK (respirable fraction); 2 mg/m ³ TWA MAK (inhalable fraction)	Not established	Not established	Not established
Crystalline silica (14808-60-7)	TWAs	0.1 mg/m ³ TWA [VME] (restrictive limit, alveolar fraction)	Not established	(10600)/(%Quartz + 10) mppcm TWA, dust count; (10)/(%Quartz + 2) mg/m ³ TWA, respirable dust; (30)/(%Quartz + 3) mg/m ³ TWA, total dust	0.1 mg/m ³ TWA (respirable particulate)	0.025 mg/m ³ TWA (respirable fraction)

Exposure Limits/Guidelines (Con't.)

	Result	Japan	Malaysia	Mexico	Netherlands	NIOSH
Talc (14807-96-6)	TWAs	0.5 mg/m ³ OEL (Class 1 Dust, respirable dust); 2 mg/m ³ OEL (Class 1 Dust, total dust)	2 mg/m ³ TWA (respirable fraction of particulate matter)	2 mg/m ³ TWA VLE-PPT (respirable fraction)	0.25 mg/m ³ TWA	2 mg/m ³ TWA (containing no Asbestos and <1% Quartz, respirable dust)
Copper oxide	TWAs	Not established	Not established	Not established	Not established	0.1 mg/m ³ TWA (fume, as Cu)
Asphalt (8052-42-4)	STELs	Not established	Not established	10 mg/m ³ STEL [PPT-CT]	Not established	Not established
	TWAs	Not established	5 mg/m ³ TWA (fume)	5 mg/m ³ TWA VLE-PPT	Not established	Not established
	Ceilings	Not established	Not established	Not established	Not established	5 mg/m ³ Ceiling (fume, 15 min)

Graphite (7782-42-5)	TWAs	2 mg/m3 OEL (Class 1 Dust, total dust); 0.5 mg/m3 OEL (Class 1 Dust, respirable dust)	2 mg/m3 TWA (all forms except Graphite fibres, respirable fraction)	2 mg/m3 TWA VLE-PPT (synthetic and natural)	Not established	2.5 mg/m3 TWA (natural, respirable dust)
Crystalline silica (14808-60-7)	TWAs	0.03 mg/m3 OEL (respirable dust) <i>as Silica, crystalline (general form)</i>	0.1 mg/m3 TWA (respirable fraction)	0.1 mg/m3 TWA VLE-PPT (respirable fraction)	0.075 mg/m3 TWA (respirable dust, listed under Silicium dioxide)	0.05 mg/m3 TWA (respirable dust)
Exposure Limits/Guidelines (Con't.)						
	Result	OSHA	OSHA Vacated	Portugal	Russia	Singapore
Talc (14807-96-6)	TWAs	Not established	2 mg/m3 TWA (<1% Crystalline silica, containing no Asbestos, respirable dust)	2 mg/m3 TWA [VLE-MP] (respirable fraction, particulate matter containing no Asbestos and <1% Crystalline silica)	Not established	2 mg/m3 PEL
Asphalt (8052-42-4)	TWAs	Not established	Not established	0.5 mg/m3 TWA [VLE-MP] (fumes, inhalable fraction, as Benzene soluble aerosol)	Not established	5 mg/m3 PEL (fume)
Graphite	TWAs	15 mg/m3 TWA (synthetic, total dust); 5 mg/m3 TWA (synthetic, respirable fraction)	2.5 mg/m3 TWA (natural, respirable dust); 10 mg/m3 TWA (synthetic, total dust); 5 mg/m3 TWA (synthetic, respirable fraction)	2 mg/m3 TWA [VLE-MP] (all forms except Graphite fibers, respirable fraction)	Not established	2 mg/m3 PEL (respirable dust)
Crystalline silica	TWAs	50 µg/m3 TWA (listed under Respirable crystalline silica)	0.1 mg/m3 TWA (respirable dust)	0.025 mg/m3 TWA [VLE-MP] (respirable fraction)	1 mg/m3 TWA (quartz glass, disintegration aerosol, total mass of aerosols, listed under Silicon dioxide amorphous and vitreous); 1 mg/m3 TWA (containing >70% Silicon dioxide in dust, total mass of aerosols, listed under Crystalline silicon dioxide)	0.1 mg/m3 PEL (respirable dust)
	STELs	Not established	Not established	Not established	3 mg/m3 STEL (quartz glass, disintegration aerosol, total mass of aerosols, listed under Silicon dioxide amorphous and vitreous); 3 mg/m3	Not established

					STEL (containing >70% Silicon dioxide in dust, total mass of aerosols, listed under Silicon dioxide crystalline)	
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Exposure Limits/Guidelines (Con't.)					
	Result	Thailand	United Kingdom	United States - California	Venezuela
Talc (14807-96-6)	TWAs	2 mg/m3 TWA (containing no asbestos fibres, respirable dust); 0.1 fiber/cm3 TWA (containing asbestos fibres, respirable dust)	1 mg/m3 TWA (respirable dust)	2 mg/m3 PEL (respirable dust, containing no Asbestos fibers, <1% Crystalline silica)	2 mg/m3 TWA [VTRE-L-8/40 (respirable fraction; particulate containing no Asbestos and <1% Crystalline silica)
	STELs	Not established	3 mg/m3 STEL (calculated, respirable dust)	Not established	Not established
Asphalt (8052-42-4)	TWAs	0.5 mg/m3 TWA (as Benzene soluble aerosol)	5 mg/m3 TWA (fumes)	5 mg/m3 PEL (fume)	0.5 mg/m3 TWA [VTRE-L-8/40 (fume, as Benzene soluble aerosols)
	STELs	Not established	10 mg/m3 STEL (fumes)	Not established	Not established
Graphite (7782-42-5)	TWAs	Not established	10 mg/m3 TWA (inhalable dust); 4 mg/m3 TWA (respirable dust)	2.5 mg/m3 PEL (natural, respirable dust); 10 mg/m3 PEL (synthetic total dust); 5 mg/m3 PEL (synthetic respirable fraction)	2 mg/m3 TWA [VTRE-L-8/40 (dust)
	STELs	Not established	30 mg/m3 STEL (calculated, inhalable dust); 12 mg/m3 STEL (calculated, respirable dust)	Not established	Not established
Crystalline silica	TWAs	0.025 mg/m3 TWA (respirable dust)	0.1 mg/m3 TWA (respirable) <i>as Silica, crystalline (general form)</i>	0.3 mg/m3 PEL (total dust); 0.1 mg/m3 PEL (respirable dust)	0.025 mg/m3 TWA [VTRE-L-8/40 (respirable fraction)
	STELs	Not established	0.3 mg/m3 STEL (calculated, respirable) <i>as Silica, crystalline (general form)</i>	Not established	Not established

Exposure Control Notations

Japan

- Copper oxide as Copper compounds: **Sensitizers:** (Group 2 skin sensitizer (Evaluation does not necessarily apply to all individuals within the group))
- Crystalline silica as Silica, crystalline (general form): **Carcinogens:** (Group 1 - Carcinogenic to Humans)

Mexico

- Talc (14807-96-6): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)
- Asphalt (8052-42-4): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)

Egypt

- Graphite (7782-42-5): **Nuisance Dusts:** (10 mg/m3 TWA (synthetic, containing <1% Quartz, total dust); 30 mppcf TWA (synthetic,

containing <1% Quartz, total dust); 3 mg/m³ TWA (synthetic, containing <1% Quartz, total dust))

Portugal

- Talc (14807-96-6): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Asphalt (8052-42-4): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen (fumes))
- Crystalline silica (14808-60-7): **Carcinogens:** (A2 - Suspected Human Carcinogen)

Indonesia

- Talc (14807-96-6): **Carcinogens:** (A4 - not classifiable as a human carcinogen (not containing asbestos fiber))
- Asphalt (8052-42-4): **Carcinogens:** (A4 - not classifiable as a human carcinogen)

Argentina

- Talc (14807-96-6): **Carcinogens:** (A1 - Confirmed human carcinogen)
- Asphalt (8052-42-4): **Carcinogens:** (A4 - Not classifiable as a human carcinogen (fumes))
- Crystalline silica (14808-60-7): **Carcinogens:** (A2 - Suspected human carcinogen)

Canada Alberta

- Crystalline silica as Silica, crystalline (general form): **Designated Substances:** (Designated substance - requires code of practice (respirable))

Canada British Columbia

- Asphalt (8052-42-4): **Carcinogens:** (IARC Category 2A - Probable Human Carcinogen (fume; occupational exposure to oxidized Bitumens and their emissions during road paving); IARC Category 2B - Possible Human Carcinogen (fume; occupational exposure to straight-run Bitumens and their emissions during road paving)) | **Designated Substances:** (IARC Category 2B - Possible Human Carcinogen (fume; occupational exposure to straight-run Bitumens and their emissions during road paving); IARC Category 2A - Probable Human Carcinogen (fume; occupational exposure to oxidized Bitumens and their emissions during road paving))
- Crystalline silica (14808-60-7): **Carcinogens:** (ACGIH Category A2 - Suspected Human Carcinogen; IARC Category 1 - Human Carcinogen) | **Designated Substances:** (ACGIH Category A2 - Suspected Human Carcinogen; IARC Category 1 - Human Carcinogen)

Canada Manitoba

- Talc (14807-96-6): **Carcinogens:** (A4 Not Classifiable as a Human Carcinogen (containing no Asbestos fibers))
- Asphalt (8052-42-4): **Carcinogens:** (A4 Not Classifiable as a Human Carcinogen (fume, Coal tar-free))
- Crystalline silica (14808-60-7): **Carcinogens:** (A2 Suspected Human Carcinogen)

Canada New Brunswick

- Talc (14807-96-6): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Asphalt (8052-42-4): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen (fumes))

Canada Nova Scotia

- Talc (14807-96-6): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen (containing no Asbestos fibers))
- Asphalt (8052-42-4): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen (fume, Coal tar-free))
- Crystalline silica (14808-60-7): **Carcinogens:** (A2 - Suspected Human Carcinogen)

Canada Ontario

- Crystalline silica (14808-60-7): **Designated Substances:** (0.10 mg/m³ TWA (respirable fraction, listed under Silica, crystalline))

Canada Quebec

- Crystalline silica (14808-60-7): **Carcinogens:** (C2 carcinogen - effect suspected in humans)

Canada Saskatchewan

- Crystalline silica as Silica, crystalline (general form): **Designated Substances:** (Present (respirable size))

Venezuela

- Talc (14807-96-6): **Ceilings:** (Present)
- Asphalt (8052-42-4): **Ceilings:** (Present)
- Crystalline silica (14808-60-7): **Ceilings:** (Present)

ACGIH

- Talc (14807-96-6): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen (containing no asbestos fibers))
- Asphalt (8052-42-4): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen (fume, coal tar-free))
- Crystalline silica (14808-60-7): **Carcinogens:** (A2 - Suspected Human Carcinogen)

Germany DFG

- Zinc powder, stabilized (7440-66-6): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to (respirable; inhalable))
- Graphite (7782-42-5): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to (inhalable fraction; respirable fraction))
- Talc (14807-96-6): **Carcinogens:** (Category 3B (could be carcinogenic for man; free of asbestos fibers))
- Asphalt (8052-42-4): **Carcinogens:** (Category 2 (considered to be carcinogenic for man; aerosol and vapor)) | **Skin:** (skin notation (aerosol and vapour))
- Crystalline silica (14808-60-7): **Carcinogens:** (Category 1 (causes cancer in man; alveola fraction))

Exposure Limits Supplemental

Thailand

- Graphite (7782-42-5): **Mineral Dusts:** (15 mppcf TWA)

•Graphite as Particulates not otherwise classified (PNOC): **Mineral Dusts:** (15 mppcf TWA (respirable dust); 15 mg/m3 TWA (total dust); 50 mppcf TWA (total dust); 5 mg/m3 TWA (respirable dust))

•Talc (14807-96-6): **Mineral Dusts:** (20 mppcf TWA)

•Crystalline silica (14808-60-7): **Mineral Dusts:** (TWA $((250/(\%SiO_2 + 5))$, mppcf, respirable dust); TWA $((10/(\%SiO_2 + 2))$, mg/m3, respirable dust); TWA $((30/(\%SiO_2 + 2))$, mg/m3, total dust))

Israel

•Asphalt (8052-42-4): **Biological Markers of Occupational Exposure:** (Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative))

OSHA

•Graphite (7782-42-5): **Mineral Dusts:** (15 mppcf TWA (natural))

•Graphite as Particulates not otherwise classified (PNOC): **Mineral Dusts:** (15 mppcf TWA (respirable fraction); 5 mg/m3 TWA (respirable fraction); 50 mppcf TWA (total dust); 15 mg/m3 TWA (total dust))

•Talc (14807-96-6): **Mineral Dusts:** (20 mppcf TWA (if 1% Quartz or more; use Quartz limit))

•Crystalline silica (14808-60-7): **Mineral Dusts:** $((250/(\%SiO_2 + 5))$ mppcf TWA, respirable fraction; $(10/(\%SiO_2 + 2))$ mg/m3 TWA, respirable fraction)

ACGIH

•Graphite (7782-42-5): **TLV Basis - Critical Effects:** (pneumoconiosis (all forms except graphite fibers))

•Talc (14807-96-6): **TLV Basis - Critical Effects:** (pulmonary fibrosis (containing no asbestos fibers); pulmonary function (containing no asbestos fibers))

•Copper oxide as Copper compounds: **TLV Basis - Critical Effects:** (gastrointestinal (dust and mist); irritation (dust and mist))

•Asphalt (8052-42-4): **BEIs:** (Medium: urine Time: end of shift at end of workweek Parameter: 1-Hydroxypyrene with hydrolysis (nonquantitative)) | **TLV Basis - Critical Effects:** (eye and upper respiratory tract irritation (fume))

•Crystalline silica (14808-60-7): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)

8.2 Exposure controls

Engineering

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Measures/Controls

Personal Protective Equipment

Respiratory

- In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/Face

- Wear protective eyewear (goggles, face shield, or safety glasses).

Skin/Body

- Rubber or cloth. Wear long sleeves and/or protective coveralls.

Environmental

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Exposure Controls

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
 BEI = Biological Exposure Indices
 MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration
 NIOSH = National Institute of Occupational Safety and Health
 OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)
 STEL = Short Term Exposure Limits are based on 15-minute exposures
 TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)
 TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
 TWAEV = Time-Weighted Average Exposure Value

Section 9 - Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Brown/copper semi-solid paste with mild petroleum odor.

Color	Brown/copper	Odor	Mild, petroleum.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	351 °C(663.8 °F)	Melting Point/Freezing Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Water Solubility	Insoluble
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	1 hPa @ 20 °C(68 °F)	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	> 150 °C(> 302 °F)	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Keep away from heat, sparks and flame.

10.5 Incompatible materials

- None in particular.

10.6 Hazardous decomposition products

- Hazardous decomposition products formed under fire conditions: Carbon oxides.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Zinc powder, stabilized (10% TO 25%)	7440-66-6	Irritation: Skin-Human • 300 µg 3 Day(s)-Intermittent • Mild irritation; Tumorigen / Carcinogen: Ingestion/Oral-Mouse TDLo • 12.6 mg/kg 46 Week(s)-Continuous; Tumorigenic: Carcinogenic by RTECS criteria; Gastrointestinal: Tumors; Tumorigenic: Facilitates action of known carcinogen

Talc (2.5% TO 10%)	14807-96-6	Irritation: Skin-Human • 300 µg 3 Day(s)-Intermittent • Mild irritation; Tumorigen / Carcinogen: Inhalation-Rat • 11 mg/m ³ 1 Year(s)-Intermittent; <i>Tumorigenic:Equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration:Tumors;</i> Inhalation-Rat TClO • 18 mg/m ³ 6 Hour(s) 2 Year(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration:Bronchiogenic carcinoma; Endocrine:Tumors</i>
Copper oxide (< 2.5%)	1317-38-0	Acute Toxicity: Ingestion/Oral-Rat LD50 • 470 mg/kg
Asphalt (2.975% TO 5.775%)	8052-42-4	Acute Toxicity: Ingestion/Oral-Rat LD50 • >5000 mg/kg; <i>Gastrointestinal:Hypermotility, diarrhea;</i> Inhalation-Rat LC50 • >94.4 mg/m ³ ; Multi-dose Toxicity: Inhalation-Rat TClO • 100 mg/m ³ 6 Hour(s) 14 Week(s)-Intermittent; <i>Sense Organs and Special Senses:Olfaction:Tumors; Behavioral:Food intake (animal); Nutritional and Gross Metabolic:Gross Metabolite Changes:Weight loss or decreased weight gain;</i> Inhalation-Human TDLo • 10 mg/m ³ 5.5 Year(s)-Intermittent; <i>Sense Organs and Special Senses:Eye:Conjunctive irritation; Lungs, Thorax, or Respiration:Cough; Gastrointestinal:Changes in structure or function of salivary glands;</i> Tumorigen / Carcinogen: Skin-Mouse • 69 g/kg 43 Week(s)-Intermittent; <i>Tumorigenic:Equivocal tumorigenic agent by RTECS criteria; Lungs, Thorax, or Respiration:Tumors; Skin and Appendages:Other:Tumors</i>
Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate (0.758625% TO 1.472625%)	68457-79-4	Acute Toxicity: Ingestion/Oral-Rat LD50 • 3.6 g/kg; <i>Behavioral:Somnolence (general depressed activity); Lungs, Thorax, or Respiration:Other changes; Gastrointestinal:Hypermotility, diarrhea</i>
Crystalline silica (42.5% TO 82.5%)	14808-60-7	Acute Toxicity: Inhalation-Human TClO • 16 mppcf 8 Hour(s) 17.9 Year(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration:Cough; Lungs, Thorax, or Respiration:Dyspnea;</i> Inhalation-Rat TClO • 200 mg/kg; <i>Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration:Other changes; Nutritional and Gross Metabolic:Changes in Chemistry or Temperature:Fe;</i> Multi-dose Toxicity: Inhalation-Hamster TClO • 3 mg/m ³ 6 Hour(s) 78 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Fibrosis (interstitial); Lungs, Thorax, or Respiration:Changes in lung weight;</i> Inhalation-Rat TClO • 80 mg/m ³ 26 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Blood:Changes in spleen; Immunological Including Allergic:Decrease in cellular immune response;</i> Inhalation-Rat TClO • 6.2 mg/m ³ 6 Hour(s) 6 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Other changes; Blood:Changes in spleen; Immunological Including Allergic:Increase in cellular immune response;</i> Mutagen: Micronucleus test • Unreported Route-Hamster • Lung (Somatic cell) • 160 µg/cm ³ ; DNA damage • Unreported Route-Human • Other Cell Type • 120 mg/L 24 Hour(s); Micronucleus test • Unreported Route-Human • Lung (Somatic cell) • 40 µg/cm ³ ; Tumorigen / Carcinogen: Inhalation-Rat TClO • 50 mg/m ³ 6 Hour(s) 71 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria; Liver:Tumors</i>

GHS Properties	Classification
Acute toxicity	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Skin corrosion/Irritation	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking

Serious eye damage/Irritation	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Skin sensitization	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Respiratory sensitization	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Aspiration Hazard	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Carcinogenicity	EU/CLP•Carcinogenicity 1A; May cause cancer by inhalation UN GHS 4•Carcinogenicity 1A OSHA HCS 2012•Carcinogenicity 1A WHMIS 2015•Carcinogenicity 1A
Germ Cell Mutagenicity	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Toxicity for Reproduction	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
STOT-SE	EU/CLP•Data lacking UN GHS 4•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
STOT-RE	EU/CLP•Specific Target Organ Toxicity Repeated Exposure 1 UN GHS 4•Specific Target Organ Toxicity Repeated Exposure 1 OSHA HCS 2012•Specific Target Organ Toxicity Repeated Exposure 1 WHMIS 2015•Specific Target Organ Toxicity Repeated Exposure 1

Potential Health Effects

Inhalation

Acute (Immediate) • Under normal conditions of use, no health effects are expected.

Chronic (Delayed) • No data available

Skin

Acute (Immediate) • Under normal conditions of use, no health effects are expected.

Chronic (Delayed) • No data available

Eye

Acute (Immediate) • Under normal conditions of use, no health effects are expected.

Chronic (Delayed) • No data available

Ingestion

Acute (Immediate) • Under normal conditions of use, no health effects are expected.

Chronic (Delayed) • No data available

Other

Chronic (Delayed) • May cause damage to lungs through prolonged or repeated exposure.

Carcinogenic Effects • Repeated and prolonged exposure may cause cancer.

Carcinogenic Effects			
	CAS	IARC	NTP
Asphalt	8052-42-4	Group 2B-Possible Carcinogen	Not Listed
Crystalline silica	14808-60-7	Group 1-Carcinogenic	Known Human Carcinogen

11.2 Other information

- Heating above the melting point releases metallic oxides which may cause metal fume fever which is an influenza like illness. Symptoms include headache, metallic taste in the mouth, cough, thirst, throat irritation, shortness of breath, fever, sweating and pain in the limbs. This illness is not permanent and recovery usually occurs within 24-48 hours after onset.

Key to abbreviations

- LC = Lethal Concentration
- LD = Lethal Dose
- TC = Toxic Concentration
- TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

Components		
Zinc powder, stabilized (10% TO 25%)	7440-66-6	<p>Aquatic Toxicity-Fish: 96 Hour(s) LC50 <i>Pimephales promelas (Fathead Minnow)</i> 0.238 mg/L Comments: Trace Metals Toxicity and Bioaccumulation in Mudskipper <i>Periophthalmus waltoni</i> Koumans 1941 (Gobiidae: Perciformes) 28 Day(s) NOEC <i>Cyprinus carpio (Common Carp)</i> 0.0026 mg/L Comments: Bioaccumulation of Micropollutants and Biomarker Responses in Caged Carp (<i>Cyprinus carpio</i>)</p> <p>Aquatic Toxicity-Crustacea: 21 Day(s) NOEC Water Flea 0.062 mg/L Comments: Bioavailability Models for Predicting Acute and Chronic Toxicity of Zinc to Algae, Daphnids, and Fish in Natural Surface Waters</p> <p>48 Hour(s) EC50 <i>Ceriodaphnia dubia</i> 0.07 mg/L Comments: Influence of Water Chemistry on the Acute Toxicity of Copper and Zinc to the Cladoceran <i>Ceriodaphnia cf dubia</i></p> <p>Aquatic Toxicity-Algae and Other Aquatic Plant(s): 72 Hour(s) EC50 <i>Pseudokirchneriella subcapitata (Green Algae)</i> 0.106 mg/L Comments: Bioavailability Models for Predicting Acute and Chronic Toxicity of Zinc to Algae, Daphnids, and Fish in Natural Surface Waters</p> <p>14 Day(s) NOEC <i>Euglena gracilis (Flagellate Euglenoid)</i> 0.0075 mg/L Comments: Water Quality Bioassay Using Selected Protozoa, II. The Effects of Zinc on Population Growth of <i>Euglena gracilis</i></p>
Copper oxide (< 2.5%)	1317-38-0	<p>Aquatic Toxicity-Fish: 4 Day(s) LC50 <i>Western Mosquitofish</i> >56000 mg/L 20 Day(s) NOEC <i>Common carp</i> 0.0128 mg/L</p> <p>Aquatic Toxicity-Crustacea: 2 Day(s) EC50 <i>Water flea</i> 92.7 mg/L</p>

- Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN3077	Environmentally hazardous substance, solid, n.o.s. (Zinc powder)	9	III	NDA
TDG	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc powder)	9	III	NDA
IMO/IMDG	UN3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc powder)	9	III	NDA
IATA/ICAO	UN3077	Environmentally hazardous substance, solid, n.o.s. (Zinc powder)	9	III	NDA

14.6 Special precautions for user

- None specified.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code • Data lacking.

Section 15 - Regulatory Information

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

SARA Hazard Classifications

- Chronic

State Right To Know		
Component	CAS	PA
Asphalt	8052-42-4	Yes
Copper oxide	1317-38-0	No
Crystalline silica	14808-60-7	Yes
Graphite	7782-42-5	Yes
Talc	14807-96-6	Yes

Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	No
Zinc powder, stabilized	7440-66-6	Yes

Inventory						
Component	CAS	Australia AICS	Canada DSL	Canada NDSL	China	EU EINECS
Asphalt	8052-42-4	Yes	Yes	No	Yes	Yes
Copper oxide	1317-38-0	Yes	Yes	No	Yes	Yes
Crystalline silica	14808-60-7	Yes	Yes	No	Yes	Yes
Graphite	7782-42-5	Yes	Yes	No	Yes	Yes
Talc	14807-96-6	Yes	Yes	No	Yes	Yes
Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Yes	Yes	No	Yes	Yes
Zinc powder, stabilized	7440-66-6	Yes	Yes	No	Yes	Yes

Inventory (Con't.)				
Component	CAS	EU ELNICS	Japan ENCS	TSCA
Asphalt	8052-42-4	No	Yes	Yes
Copper oxide	1317-38-0	No	Yes	Yes
Crystalline silica	14808-60-7	No	Yes	Yes
Graphite	7782-42-5	No	No	Yes
Talc	14807-96-6	No	Yes	Yes
Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	No	Yes	Yes
Zinc powder, stabilized	7440-66-6	No	No	Yes

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

•Copper oxide	1317-38-0	Not Listed
•Talc	14807-96-6	Not Listed
•Asphalt	8052-42-4	Not Listed
•Zinc powder, stabilized	7440-66-6	Not Listed
•Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Not Listed
•Crystalline silica	14808-60-7	Not Listed
•Graphite	7782-42-5	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

•Copper oxide	1317-38-0	Not Listed
•Talc	14807-96-6	Not Listed
•Asphalt	8052-42-4	Not Listed

•Zinc powder, stabilized	7440-66-6	Not Listed
•Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Not Listed
•Crystalline silica	14808-60-7	Not Listed
•Graphite	7782-42-5	Not Listed
U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)		
•Copper oxide	1317-38-0	Not Listed
•Talc	14807-96-6	Not Listed
•Asphalt	8052-42-4	Not Listed
•Zinc powder, stabilized	7440-66-6	Not Listed
•Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Not Listed
•Crystalline silica	14808-60-7	Not Listed
•Graphite	7782-42-5	Not Listed
U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)		
•Copper oxide	1317-38-0	Not Listed
•Talc	14807-96-6	Not Listed
•Asphalt	8052-42-4	Not Listed
•Zinc powder, stabilized	7440-66-6	Not Listed
•Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Not Listed
•Crystalline silica	14808-60-7	Not Listed
•Graphite	7782-42-5	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		
•Copper oxide	1317-38-0	Not Listed
•Talc	14807-96-6	Not Listed
•Asphalt	8052-42-4	Not Listed
•Zinc powder, stabilized	7440-66-6	Not Listed
•Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Not Listed
•Crystalline silica	14808-60-7	Not Listed
•Graphite	7782-42-5	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
•Copper oxide	1317-38-0	Not Listed
•Talc	14807-96-6	Not Listed
•Asphalt	8052-42-4	Not Listed
•Zinc powder, stabilized	7440-66-6	Not Listed
•Zinc O,O-bis(mixed iso-butyl and pentyl) phosphorodithioate	68457-79-4	Not Listed
•Crystalline silica	14808-60-7	Not Listed
•Graphite	7782-42-5	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H351 - Suspected of causing cancer.

Revision Date • 29/January/2018

Last Revision Date • 29/January/2018

Preparation Date • 21/May/2013

Disclaimer/Statement of Liability • The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material

used in combination with any other materials or in any process, unless specified in the text.

Key to abbreviations
NDA = No Data Available