



CEMENTED TUNGSTEN CARBIDE CUTTING TOOLS; AMORPHOUS DIAMOND COATED; SDS GROUP 23

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Date of Issue: 01/28/2020

Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: CEMENTED TUNGSTEN CARBIDE CUTTING TOOLS; AMORPHOUS DIAMOND COATED; SDS GROUP 23

This product covers solid metal blanks for manufacturing cutting tools, this SDS and the hazards and information described below apply to this product if the materials contained within the cutting tool(s) become available during processing conditions, including dusts and particulates

1.2. Intended Use of the Product

Cutting Tools for Manufacturing Industries. When used as intended, this product is physiologically inert. Do not modify or resharpen product; return tools to Harvey Tool Company for alteration.

1.3. Name, Address, and Telephone of the Responsible Party

Company

Harvey Tool Company, LLC
428 Newburyport Turnpike
Rowley, MA 01969
800-645-5609

Harveysales@harveyperformance.com

1.4. Emergency Telephone Number

Emergency Number : Within USA and Canada: 1-800-424-9300 or +1-703-527-3887 (collect calls accepted)

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

| | |
|----------------|------|
| Resp. Sens. 1B | H334 |
| Skin Sens. 1 | H317 |
| Carc. 1 | H350 |
| Repr. 2 | H361 |
| Comb. Dust | |

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

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA) :



GHS08

Signal Word (GHS-US/CA) :

Danger

Hazard Statements (GHS-US/CA) :

May form combustible dust concentrations in air.
H317 - May cause an allergic skin reaction.
H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
H350 - May cause cancer.
H361 - Suspected of damaging fertility or the unborn child.

Precautionary Statements (GHS-US/CA) :

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing vapors, mist, or spray.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, and eye protection.
P284 - [In case of inadequate ventilation] wear respiratory protection.

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P302+P352 - IF ON SKIN: Wash with plenty of water.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P321 - Specific treatment (see section 4 on this SDS).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Supplemental Information

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Proper grounding procedures to avoid static electricity should be followed. Prevent dust accumulation (to minimize explosion hazard). Avoid generating dust.

2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Contains substances that are combustible dusts. If the product is processed and dusts are generated and become dispersed with an ignition source, this may cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations. This product contains components that are environmentally hazardous and small chips, fine turnings, and dust from processing may be toxic to aquatic life.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

| Name | Synonyms | Product Identifier | % * | GHS Ingredient Classification |
|--------------------------|--|----------------------|---------------|---|
| Tungsten carbide | Tungsten carbide (WC) / Tungsten(IV) carbide | (CAS-No.) 12070-12-1 | 49.94 - 49.95 | Comb. Dust |
| Cobalt | Cobalt metal / Cobalt, elemental / C.I. 77320 / Cobalt metallic | (CAS-No.) 7440-48-4 | 4.99 - 9.99 | Acute Tox. 4 (Oral), H302 Resp. Sens. 1B, H334 Skin Sens. 1, H317 Carc. 1B, H350 Repr. 2, H361 Aquatic Chronic 4, H413 |
| Chromium carbide (Cr3C2) | Trichromium dicarbide / Chromium carbide | (CAS-No.) 12012-35-0 | 0.1 - 0.999 | Not classified |
| Vanadium carbide (VC) | Vanadium carbide | (CAS-No.) 12070-10-9 | 0.1 - 0.999 | Not classified |
| Graphite | C.I. Pigment Black 10 / C.I. 77265 / Graphite (all forms except graphite fibres) | (CAS-No.) 7782-42-5 | > 0.01 | Comb. Dust |

Full text of H-phrases: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of 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).

Inhalation: 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.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

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Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: The health effects listed below are not likely to occur unless dust or fumes are generated by processing. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Skin sensitization. May cause cancer. Suspected of damaging fertility or the unborn child. Final product may have sharp edges.

Inhalation: Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction. Dust may be harmful or cause irritation.

Skin Contact: May cause an allergic skin reaction. Contact with hot, molten metal will cause thermal burns. Mechanical damage via flying particles and chipped slag is possible.

Eye Contact: During metal processing, dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Ingestion: For particulates and dust: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause cancer. Suspected of damaging fertility or the unborn child.

Cobalt: Chronic exposure to cobalt-containing hard metal (dust or fume) can result in a serious lung disease called "hard metal lung disease", which is a type of pneumoconiosis (lung fibrosis).

Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion.

Vanadium: May cause gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma.

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: FIRE-FIGHTING 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. Do not use water when molten material is involved, may react violently or explosively on contact with water.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Combustible Dust. Metallic dusts may ignite or explode.

Explosion Hazard: Dust explosion hazard in air. If excessive dust is generated from processing, it may present a dust explosion hazard when dispersed in air at sufficient quantities in the presence of an ignition source.

Reactivity: Hazardous reactions will not occur under normal conditions.

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.

Hazardous Combustion Products: Metal oxides.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses. Risk of dust explosion.

5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Avoid generating dust. Remove ignition sources. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Do not handle until all safety precautions have been read and understood.

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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 Personnel

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.

6.3. Methods and Materials 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. 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. Contact competent authorities after a spill.

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: This product is physiologically inert in its massive form. However, user-generated dust and/or fumes may pose a physiological hazard if inhaled or ingested. Avoid inhalation of metal dusts and fumes. May cause an influenza-like illness. Avoid skin and eye contact with dusts to prevent mechanical irritation. User-generated dust is easily ignited and difficult to extinguish. 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: Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not handle until all safety precautions have been read and understood. Avoid creating or spreading dust. Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Handle empty containers with care because they may still present a hazard. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Obtain special instructions before use.

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.

Incompatible Materials: Strong acids. Strong oxidizers. Strong bases.

7.3. Specific End Use(s)

Cutting Tools for Manufacturing Industries. When used as intended, this product is physiologically inert. Do not modify or sharpen product; return tools to Harvey Tool Company for alteration.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

| Cobalt (7440-48-4) | | |
|--------------------|-----------------------------------|--|
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| USA ACGIH | ACGIH chemical category | dermal sensitizer, Confirmed Animal Carcinogen with Unknown Relevance to Humans |
| USA ACGIH | Biological Exposure Indices (BEI) | 15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of shift at end of workweek (nonspecific) |

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| | | |
|------------------------------------|--------------------------------------|---|
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 0.1 mg/m ³ (dust and fume) |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 0.05 mg/m ³ (dust and fume) |
| USA IDLH | US IDLH (mg/m ³) | 20 mg/m ³ (dust and fume) |
| Alberta | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| New Brunswick | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| Nova Scotia | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| Nunavut | OEL STEL (mg/m ³) | 0.06 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 0.06 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| Québec | VEMP (mg/m ³) | 0.02 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 0.06 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 0.15 mg/m ³ (dust and fume) |
| Yukon | OEL TWA (mg/m ³) | 0.05 mg/m ³ (dust and fume) |

Tungsten, insoluble compounds

| | | |
|------------------------------|---------------------------------------|----------------------|
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 5 mg/m ³ |
| USA NIOSH | NIOSH REL (STEL) (mg/m ³) | 10 mg/m ³ |
| Alberta | OEL STEL (mg/m ³) | 10 mg/m ³ |
| Alberta | OEL TWA (mg/m ³) | 5 mg/m ³ |
| British Columbia | OEL STEL (mg/m ³) | 10 mg/m ³ |
| British Columbia | OEL TWA (mg/m ³) | 5 mg/m ³ |
| New Brunswick | OEL STEL (mg/m ³) | 10 mg/m ³ |
| New Brunswick | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Nunavut | OEL STEL (mg/m ³) | 10 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 10 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Ontario | OEL STEL (mg/m ³) | 10 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Québec | VECD (mg/m ³) | 10 mg/m ³ |
| Québec | VEMP (mg/m ³) | 5 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 10 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 5 mg/m ³ |
| Yukon | OEL STEL (mg/m ³) | 10 mg/m ³ |
| Yukon | OEL TWA (mg/m ³) | 5 mg/m ³ |

Tungsten compounds

| | | |
|------------------------------------|--------------------------------|--|
| USA ACGIH | ACGIH TWA (mg/m ³) | 3 mg/m ³ (in the absence of cobalt-respirable particulate matter) |
| Manitoba | OEL TWA (mg/m ³) | 3 mg/m ³ (in the absence of Cobalt-respirable particulate matter) |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 3 mg/m ³ (in the absence of Cobalt-respirable particulate matter) |
| Nova Scotia | OEL TWA (mg/m ³) | 3 mg/m ³ (in the absence of Cobalt-respirable particulate matter) |

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| | | |
|---|--|---|
| Prince Edward Island | OEL TWA (mg/m ³) | 3 mg/m ³ (in the absence of Cobalt-respirable particulate matter) |
| Vanadium carbide (VC) (12070-10-9) | | |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 1 mg/m ³ (Ferrovanadium dust) |
| USA NIOSH | NIOSH REL (STEL) (mg/m ³) | 3 mg/m ³ (Ferrovanadium dust) |
| Vanadium compounds | | |
| USA NIOSH | NIOSH REL (ceiling) (mg/m ³) | 0.05 mg/m ³ (except Vanadium metal and Vanadium carbide-dust and fume) |
| Graphite (7782-42-5) | | |
| USA ACGIH | ACGIH TWA (mg/m ³) | 2 mg/m ³ (all forms except graphite fibers-respirable particulate matter) |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 15 mg/m ³ (synthetic-total dust) 5 mg/m ³ (synthetic-respirable fraction) |
| USA NIOSH | NIOSH REL (TWA) (mg/m ³) | 2.5 mg/m ³ (natural-respirable dust) |
| USA IDLH | US IDLH (mg/m ³) | 1250 mg/m ³ (Graphite (natural)) |
| Alberta | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except Graphite fibres-respirable) |
| British Columbia | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except Graphite fibres-respirable) |
| Manitoba | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter) |
| New Brunswick | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except graphite fibres) |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter) |
| Nova Scotia | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter) |
| Nunavut | OEL STEL (mg/m ³) | 4 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction) |
| Nunavut | OEL TWA (mg/m ³) | 2 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction) |
| Northwest Territories | OEL STEL (mg/m ³) | 4 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction) |
| Northwest Territories | OEL TWA (mg/m ³) | 2 mg/m ³ (natural, all forms, except Graphite fibres-respirable fraction) |
| Ontario | OEL TWA (mg/m ³) | 2 mg/m ³ (except Graphite fibres-respirable) |
| Prince Edward Island | OEL TWA (mg/m ³) | 2 mg/m ³ (all forms except Graphite fibers-respirable particulate matter) |
| Québec | VEMP (mg/m ³) | 2 mg/m ³ (containing no Asbestos and <1% Crystalline silica, except Graphite fibres-respirable dust) |
| Saskatchewan | OEL STEL (mg/m ³) | 4 mg/m ³ (natural, except Graphite fibres-respirable fraction) |
| Saskatchewan | OEL TWA (mg/m ³) | 2 mg/m ³ (natural, except Graphite fibres-respirable fraction) |
| Yukon | OEL TWA (mg/m ³) | 20 mppcf 30 mppcf (synthetic) 10 mg/m ³ (synthetic) |
| Cobalt inorganic compounds | | |
| USA ACGIH | ACGIH TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| USA ACGIH | ACGIH chemical category | dermal sensitizer, Confirmed Animal Carcinogen with Unknown Relevance to Humans |
| USA ACGIH | Biological Exposure Indices (BEI) | 15 µg/l Parameter: Cobalt - Medium: urine - Sampling time: end of shift at end of workweek (nonspecific) |
| Alberta | OEL TWA (mg/m ³) | 0.02 mg/m ³ |

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| | | |
|-------------------------------------|-------------------------------|---|
| British Columbia | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Manitoba | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| New Brunswick | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Newfoundland & Labrador | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| Nova Scotia | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| Nunavut | OEL STEL (mg/m ³) | 0.06 mg/m ³ |
| Nunavut | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Northwest Territories | OEL STEL (mg/m ³) | 0.06 mg/m ³ |
| Northwest Territories | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Ontario | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Prince Edward Island | OEL TWA (mg/m ³) | 0.02 mg/m ³ (inhalable particulate matter) |
| Québec | VEMP (mg/m ³) | 0.02 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 0.06 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.02 mg/m ³ |
| Chromium inorganic compounds | | |
| Alberta | OEL TWA (mg/m ³) | 0.5 mg/m ³ |
| Saskatchewan | OEL STEL (mg/m ³) | 1.5 mg/m ³ |
| Saskatchewan | OEL TWA (mg/m ³) | 0.5 mg/m ³ |

8.2. Exposure Controls

Appropriate Engineering Controls: 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. 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. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Ensure all national/local regulations are observed.

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.

Thermal Hazard Protection: Wear thermally resistant protective clothing if there is a risk of exposure to extreme cold or hot temperatures.

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 |
| Appearance | : Grey |
| Odor | : Odorless |
| Odor Threshold | : Not available |
| pH | : Not available |
| Evaporation Rate | : Not available |

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| | |
|---|--------------------------|
| Melting Point | : Not available |
| Freezing Point | : Not available |
| Boiling Point | : Not available |
| Flash Point | : Not available |
| Auto-ignition Temperature | : Not available |
| Decomposition Temperature | : Not available |
| Flammability (solid, gas) | : Not available |
| Lower Flammable Limit | : Not available |
| Upper Flammable Limit | : Not available |
| Vapor Pressure | : Not available |
| Relative Vapor Density at 20°C | : Not available |
| Relative Density | : Not available |
| Density | : 15.7 g/cm ³ |
| Specific Gravity | : Not available |
| Solubility | : Water: Insoluble |
| Partition Coefficient: N-Octanol/Water | : Not available |
| Viscosity | : Not available |

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 oxidizers. Strong bases.
- 10.6. Hazardous Decomposition Products:** Not expected to decompose under ambient conditions. Thermal decomposition may produce : Metal oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified.

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: May cause an allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Exposure may produce cough, mucous secretions, shortness of breath, chest tightness or other symptoms indicative of an allergic/sensitization reaction. Dust may be harmful or cause irritation.

Symptoms/Injuries After Skin Contact: May cause an allergic skin reaction. Contact with hot, molten metal will cause thermal burns. Mechanical damage via flying particles and chipped slag is possible.

Symptoms/Injuries After Eye Contact: During metal processing, dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

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Symptoms/Injuries After Ingestion: For particulates and dust: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: May cause cancer. Suspected of damaging fertility or the unborn child.

Cobalt: Chronic exposure to cobalt-containing hard metal (dust or fume) can result in a serious lung disease called "hard metal lung disease", which is a type of pneumoconiosis (lung fibrosis).

Chromium: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Increased incidences of respiratory cancer have been found in chromium (VI) workers. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Please refer to IARC volume 23 for a more detailed discussion.

Vanadium: May cause gastrointestinal discomfort, renal damage, nervous system depression and irritation of the respiratory passages. May also cause cardiac palpitations and asthma.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

| | |
|---|---|
| Cobalt (7440-48-4) | |
| LD50 Oral Rat | 215.9 - 1140 mg/kg |
| LC50 Inhalation Rat | > 10 mg/l (Exposure time: 1 h) |
| LC50 Inhalation Rat | < 0.05 mg/l/4h |
| ATE US/CA (dust, mist) | 0.01 mg/l/4h |
| Graphite (7782-42-5) | |
| LD50 Oral Rat | > 2000 mg/kg |
| LC50 Inhalation Rat | > 2000 mg/m ³ (Exposure time: 4 h) |
| Cobalt (7440-48-4) | |
| IARC Group | 2B |
| National Toxicology Program (NTP) Status | Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen. |
| OSHA Hazard Communication Carcinogen List | In OSHA Hazard Communication Carcinogen list. |
| Cobalt compounds | |
| IARC Group | 2B |
| National Toxicology Program (NTP) Status | Reasonably anticipated to be Human Carcinogen. |
| OSHA Hazard Communication Carcinogen List | In OSHA Hazard Communication Carcinogen list. |

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Harmful to aquatic life.

| | |
|-----------------------------|---|
| Cobalt (7440-48-4) | |
| LC50 Fish 1 | > 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static]) |
| Graphite (7782-42-5) | |
| LC50 Fish 1 | > 100 mg/l (Exposure time: 96 h - Species: Danio rerio [semi-static]) |
| EC50 Daphnia 1 | > 100 mg/l (Exposure time: 48 h - Species: Daphnia magna [static]) |
| ErC50 (algae) | > 100 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [sstatic]) |
| NOEC Chronic Fish | > 100 mg/l (Exposure time: 96 h - Species: Danio rerio [semi-static]) |
| NOEC Chronic Crustacea | > 100 mg/l (Exposure time: 48 h - Species: Daphnia magna [static]) |
| NOEC Chronic Algae | > 100 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [sstatic]) |

12.2. Persistence and Degradability

| | |
|--|---|
| CEMENTED TUNGSTEN CARBIDE CUTTING TOOLS; AMORPHOUS DIAMOND COATED; SDS GROUP 23 | |
| Persistence and Degradability | May cause long-term adverse effects in the environment. |

12.3. Bioaccumulative Potential

| | |
|--|------------------|
| CEMENTED TUNGSTEN CARBIDE CUTTING TOOLS; AMORPHOUS DIAMOND COATED; SDS GROUP 23 | |
| Bioaccumulative Potential | Not established. |
| Cobalt (7440-48-4) | |

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| | |
|------------|----------------------|
| BCF Fish 1 | (no bioaccumulation) |
|------------|----------------------|

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

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.

14.1. In Accordance with DOT Not regulated for transport

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

| | |
|--|---|
| CEMENTED TUNGSTEN CARBIDE CUTTING TOOLS; AMORPHOUS DIAMOND COATED; SDS GROUP 23 | |
| SARA Section 311/312 Hazard Classes | Physical hazard - Combustible dust Health hazard - Respiratory or skin sensitization Health hazard - Reproductive toxicity Health hazard - Carcinogenicity |
| Tungsten carbide (12070-12-1) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Cobalt (7440-48-4) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 0.1 % |
| Chromium carbide (Cr3C2) (12012-35-0) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Vanadium carbide (VC) (12070-10-9) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Vanadium compounds | |
| Subject to reporting requirements of United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 1 % |
| Graphite (7782-42-5) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory | |
| Cobalt inorganic compounds | |
| Subject to reporting requirements of United States SARA Section 313 | |
| SARA Section 313 - Emission Reporting | 0.1 % |

15.2. US State Regulations

California Proposition 65



WARNING: This product can expose you to Cobalt, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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| Chemical Name (CAS No.) | Carcinogenicity | Developmental Toxicity | Female Reproductive Toxicity | Male Reproductive Toxicity |
|---|-----------------|------------------------|------------------------------|----------------------------|
| Cobalt (7440-48-4) | X | | | |
| Tungsten carbide (12070-12-1) | | | | |
| U.S. - New Jersey - Right to Know Hazardous Substance List | | | | |
| Cobalt (7440-48-4) | | | | |
| U.S. - Massachusetts - Right To Know List | | | | |
| U.S. - New Jersey - Right to Know Hazardous Substance List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) List | | | | |
| Cobalt compounds | | | | |
| U.S. - New Jersey - Right to Know Hazardous Substance List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) List | | | | |
| Chromium compounds | | | | |
| U.S. - New Jersey - Right to Know Hazardous Substance List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) List | | | | |
| Vanadium compounds | | | | |
| U.S. - New Jersey - Right to Know Hazardous Substance List | | | | |
| Graphite (7782-42-5) | | | | |
| U.S. - Massachusetts - Right To Know List | | | | |
| U.S. - New Jersey - Right to Know Hazardous Substance List | | | | |
| U.S. - Pennsylvania - RTK (Right to Know) List | | | | |

15.3. Canadian Regulations

| |
|--|
| Tungsten carbide (12070-12-1) |
| Listed on the Canadian DSL (Domestic Substances List) |
| Cobalt (7440-48-4) |
| Listed on the Canadian DSL (Domestic Substances List) |
| Chromium carbide (Cr3C2) (12012-35-0) |
| Listed on the Canadian DSL (Domestic Substances List) |
| Vanadium carbide (VC) (12070-10-9) |
| Listed on the Canadian NDSL (Non-Domestic Substances List) |
| Graphite (7782-42-5) |
| Listed on the Canadian DSL (Domestic Substances List) |

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 01/28/2020

Revision

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

| | |
|--|--|
| Acute Tox. 1 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) Category 1 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Acute 1 | Hazardous to the aquatic environment - Acute Hazard Category 1 |
| Aquatic Acute 2 | Hazardous to the aquatic environment - Acute Hazard Category 2 |
| Aquatic Chronic 1 | Hazardous to the aquatic environment - Chronic Hazard Category 1 |

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| | |
|-------------------|--|
| Aquatic Chronic 2 | Hazardous to the aquatic environment - Chronic Hazard Category 2 |
| Carc. 1 | Carcinogenicity, Category 1 |
| Carc. 1B | Carcinogenicity Category 1B |
| Comb. Dust | Combustible Dust |
| Eye Irrit. 2A | Serious eye damage/eye irritation Category 2A |
| Repr. 2 | Reproductive toxicity Category 2 |
| Resp. Sens. 1B | Respiratory sensitization, Category 1B |
| Skin Sens. 1 | Skin sensitization, Category 1 |
| H302 | Harmful if swallowed |
| H317 | May cause an allergic skin reaction |
| H319 | Causes serious eye irritation |
| H330 | Fatal if inhaled |
| H334 | May cause an allergy or asthma symptoms or breathing difficulties if inhaled |
| H350 | May cause cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H400 | Very toxic to aquatic life |
| H401 | Toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |
| H411 | Toxic to aquatic life with long lasting effects |

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.

NA GHS SDS 2015 (Can, US)