



LOVEJOY TOOL COMPANY, INC.
133 MAIN STREET
SPRINGFIELD, VT 05156

SAFETY DATA SHEET (SDS)

Cemented Carbide Product with Cobalt/Nickel/Chrome binder

DOCUMENT I.D.: OS-4020

Section 1: Identification of the substance/mixture and of the company/undertaking:

1.1 Product

- 1.1.1 **Chemical Names:** Cemented Carbide Product with Cobalt/Nickel/Chrome binder
- 1.1.2 **Synonyms:** Cemented Carbide, Sintered Carbide, Hard metal
- 1.1.3 **Chemical Family:** Refractory Metal Carbide
- 1.1.4 **Chemical use:** Cutting tools, inserts, wear parts tools, mill rolls, drill bits, drill rods

1.2 Manufacturer

- 1.2.1 **Manufacturer Name:**
Lovejoy Tool Company, Inc.
PO Box 949
133 Main St.
Springfield, VT 05156-0949
USA
www.lovejoytool.com
(802) 885-2194
- 1.2.2 **Emergency Phone Number:**
(800) 843-8376

Section 2: Hazards Identification:

2.1 Classification

- 2.1.1 **Symbol:** None required.
- 2.1.2 **Signal Word:** None required.
- 2.1.3 **Hazard Statement (finished goods):** As defined in the OSHA Hazard Communication Standard, 29 CFR 1910.1200, the aforementioned products are considered articles and do not require an SDS. In addition, articles are not included in the scope of the Globally Harmonization System (GHS). As such, the GHS labeling elements are not included on this SDS. All components listed for this product are bound within the product. When handled as intended and under normal conditions of use, there is no evidence that any of the ingredients are released in amounts that pose a significant health risk. Although these products are not subject to the OSHA Standard or GHS labeling elements, Lovejoy Tool Co., Inc. would like to disclose as much health and safety information as possible to ensure that this product is handled and used properly. This SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and be made available for employees and other users of this product. In



addition, the recommendations for handling and use of these products should be included in worker training programs.

2.1.4 Hazard Statement (rough mold): Dry grinding of the sintered product will produce dust of potentially hazardous ingredients; wet grinding of the sintered product will produce mist with potentially hazardous ingredients; heating of the sintered product will produce fumes of potentially hazardous ingredients, which can be inhaled, swallowed or come in contact with the skin or eyes. May be harmful if swallowed, inhaled or in contact with the skin or eyes.

2.2 OSHA Regulatory Status

Grinding this material will generate dusts and mists that are considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

2.3 Potential Effects of Exposure

2.3.1 Inhalation: Can cause irritation of the respiratory organs of a small percentage of sensitive persons, resulting in obstruction of respiratory ways with breathing difficulties: occupational asthma and interstitial fibrosis. It is reported that workers that have been exposed to air-borne cemented carbide dust have a higher risk of contracting lung cancer.

2.3.2 Skin Contact: Can cause irritation or an allergic skin rash due to cobalt or nickel sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.

2.3.3 Eye Contact: Can cause irritation.

2.3.4 Ingestion: Reports outside the industry suggest that ingestion of significant amounts of cobalt has the potential to cause blood, heart and other organ problems.

2.4 Environmental Effects: No data is available at this time.

Section 3: Hazard Ingredients:

Material	Weight Percent*	CAS Number
Tungsten Carbide (Tungsten Insoluble Compounds as W)	50-98 %	7440-33-7
Tungsten Carbide (Tungsten Soluble Compounds as W)	50-98 %	7440-33-7
Cobalt Metal, Dust, and Fume (as Co)	1-30 %	7440-48-4
Tantalum Carbide (Tantalum Metal and Oxide Dust as Ta)	0-15 %	-
Chromium (II+III Compounds as Cr+3)	0-5 %	7440-25-7
Chromium Metal (as Cr+3)	0-5 %	7440-47-3
Nickel (Metal and Insoluble Compounds as Ni)	0-5 %	7440-47-3



Nickel (Soluble Compounds as Ni)	0-5 %	7440-02-0
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*Varies depending on grade

Section 4: First Aid Measures:

4.1 First-aid and Emergency Measures

- 4.1.1. Overexposure:** If overexposure to dusts and mists from grinding occurs, have SDS and label information available and contact a poison control center or seek medical attention immediately.
- 4.1.2. Inhalation:** If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.) remove from exposure and seek medical attention.
- 4.1.3. Skin Contact:** If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. If irritation or rash persists, seek medical attention.
- 4.1.4. Eye Contact:** If irritation occurs, flush with large amounts of water. If irritation persists, seek medical attention.
- 4.1.5. Ingestion:** If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting and seek medical attention.

4.2 Carcinogenic Assessment

ACGIH, NTP, IARC and OSHA have identified nickel as a confirmed carcinogen. IARC and NIOSH have indicated that cobalt is a suspected human carcinogen.

Section 5: Firefighting Measures:

5.1. Flammable properties

- 5.1.1. End products made from (sintered) cemented carbide are not flammable.**
However, dusts generated from, and/or during, machining operations may ignite if allowed to accumulate when exposed to an ignition source.
- 5.1.2. Flashpoint:** None
- 5.1.3. Auto-ignition:** Not applicable
- 5.1.4. Lower Flammable Limit (LFL):** Not applicable
- 5.1.5. Upper Flammable Limit (UFL):** Not applicable

5.2. Extinguishing Media

- 5.2.1. Suitable Extinguishing Media:** For powder fires, smother with dry sand, dry dolomite, ABC type fire extinguisher, or flood with water. Move container from fire area if possible. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, or else withdraw and let fire burn out.



5.2.2. Non-suitable Extinguishing Media: Not applicable

5.3. Specific Hazards

5.3.1. Dusts may present a fire or explosion hazard under rare favoring conditions of particle size, dispersion and strong ignition source.

5.3.2. May generate toxic metal fumes when heated.

5.3.3. Precautions for Firefighters: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, firefighters should use self-contained breathing apparatus.

Section 6: Accidental Release Measures:

6.1 Precautions

6.1.1. Personal: If airborne dust is present, use personal protection recommended in Section 8.

6.1.2. Environmental: Material is not hazardous to the environment.

6.2. Spills: In Event that Dust or Sludge is Released or Spilled:

6.2.1. Ventilate the area.

6.2.2. Clean up using methods that avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the PEL or TLV), wet dust mop or wet clean up.

6.2.3. If airborne dust is generated, use an appropriate NIOSH approved respirator.

6.2.4. Place reclaimed material in a suitable clean, dry container for recycling.

Section 7: Handling and Storage:

7.1. Handling

7.1.1. Avoid dispersion of grinding dust and mist into the air.

7.1.2. If airborne dust is generated, use an appropriate NIOSH approved respirator.

7.1.3. Avoid contact with skin, eyes, or clothing.

7.1.4. Wash hands thoroughly after handling, before eating or smoking.

7.1.5. Do not shake clothing, rags, or other items to remove dust instead removed dust by washing or vacuuming.

7.2. Storage



7.2.1. There are no specific storage requirements for end products.

7.2.2. Keep any dust and accumulated powders away from sparks and ignition sources.

Section 8: Exposure Controls/Personal Protection:

8.1 Permissible Exposure Limits (PEL)

Material	OSHA PEL: TWA	CGIH TLV
Tungsten Carbide (Tungsten Insoluble Compounds as W)	5.00 mg/m ³	5.00 mg/m ³
Tungsten Carbide (Tungsten Soluble Compounds as W)	1.00 mg/m ³	0.02 mg/m ³
Cobalt Metal, Dust, and Fume (as Co)	0.05 mg/m ^{3**}	0.02 mg/m ³
Tantalum Carbide (Tantalum Metal and Oxide Dust as Ta)	5.00 mg/m ³	5.00 mg/m ³
Chromium (II+III Compounds as Cr+3)	0.50 mg/m ³	0.50 mg/m ³
Chromium Metal (as Cr+3)	1.00 mg/m ³	1.50 mg/m ³
Nickel (Metal and Insoluble Compounds as Ni)	1.00 mg/m ³	1.50 mg/m ³
Nickel (Soluble Compounds as Ni)	0.10 mg/m ³	0.10 mg/m ³

**MIOSHA 0.05 mg/m³, OSHA 0.1 mg/m³

8.2. Engineering Controls

8.2.1. Dust Control: Use local exhaust ventilation that is adequate to limit personal exposure to respirable airborne dust to levels that do not exceed the PEL or TLV.

8.2.2. Respirators: If adequate control equipment is not available, use a respirator as specified below.

8.3. Personal Protection Equipment (PPE)

8.3.1. Respiratory: Use the appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate PEL or TLV. All appropriate requirements set forth in 29 CFR 1910.134 should be met.

8.3.2. Skin: Protective gloves or barrier cream are recommended when contact with dust or mist is likely. Prior to applying the barrier cream or use of protective gloves, wash thoroughly.

8.3.3. Eyes and Face: Safety glasses with side shields or goggles are recommended.

8.4. Individual Protection Measures



- 8.4.1. When using wet grinding equipment with closed water circuit, a suitable additive should be used to prevent cobalt from accumulating in the water. A recommended additive is CASTROL PE 425/6.
- 8.4.2. Clean equipment using methods that avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the PEL or TLV), wet dust mop or wet clean up. If airborne dust is generated, use an appropriate NIOSH approved respirator.
- 8.4.3. Wash hands thoroughly after handling dust or sludge, before eating or smoking.
- 8.4.4. Wash exposed skin at the end of work shift.
- 8.4.5. Do not shake clothing, rags, or other items to remove dust.
- 8.4.6. Dust should be removed from contaminated items by washing or vacuuming using the appropriate filters and precautions.
- 8.4.7. Allergic persons sensitive to cobalt or nickel must not be involved in activities where exposure to cobalt or nickel occurs.
- 8.4.8. Periodic medical examinations are recommended for individuals regularly working in the vicinity of dust and/or mist and for those who voluntarily or are required to wear respirators.

Section 9: Physical and Chemical Properties:

9.1 Physical Properties

Appearance and Odor: Dark Grey Metal / Odorless	Specific Gravity (H2O=1) 10 to 15
Boiling point: N/A	Percent Volatile by Volume: 0
Vapor Pressure (mm Hg): N/A	Evaporation Rate: N/A
Vapor Density (Air=1) N/A	Best Monitored: Air Sample
Solubility in Water: Insoluble	Freezing Point:
Melting Point:	Viscosity:
Flashpoint: None	
Evaporation rate:	

9.2 Chemical Properties

pH:	Not applicable
Flammability :	Not applicable
Explosive limits:	Not applicable
Auto-ignition temperature:	Not applicable
Decomposition Temperature:	Not applicable
Partition coefficient: n-octanol/water:	Not applicable



Section 10: Stability and Reactivity:

10.1. Stability

- 10.1.1. Stable under normal conditions of pressure and temperature.
- 10.1.2. Non-reactive
- 10.1.3. No known conditions to avoid
- 10.1.4. No hazardous decomposition products

10.2. Incompatible Materials

- 10.2.1. Acids, strong oxidizers

10.3. Possibility of Hazardous Reactions

- 10.3.1. Not under normal circumstances

Section 11: Toxicological Information:

11.1. Routes of Exposure

- 11.1.1. **Inhalation:** Dust, mist or fumes from grinding or heating of the sintered product can cause irritation of the respiratory organs of a small percentage of sensitive persons, resulting in obstruction of respiratory ways with breathing difficulties: occupational asthma and interstitial fibrosis. It is reported that workers that have been exposed to air-borne cemented carbide dust have a higher risk of contracting lung cancer.
- 11.1.2. **Skin Contact:** Can cause irritation or an allergic skin rash due to cobalt or nickel sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.
- 11.1.3. **Eye Contact:** Can cause irritation.
- 11.1.4. **Ingestion:** Reports outside the industry suggest that ingestion of significant amounts of cobalt has the potential for causing bleed, heart and other organ problems.

Section 12: Ecological Information:

12.1. Threat to the environment: None



Section 13: Disposal Considerations:

- 13.1. Dispose of any waste in accordance with appropriate government regulations.
- 13.2. May be sold for recycling.

Section 14: Transportation:

- 14.1. Transport material in accordance with appropriate government regulations.

Section 15: Regulatory Information:

- 15.1. None

Section 16: Other Information:

- 16.1. Original Date of Preparation: 1/29/97
- 16.2. Replaces prior "OS-4020, MATERIAL SAFETY DATA SHEET (MSDS)"