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SAFETY DATA SHEET

1. IDENTIFICATION

Chemical Name: Cemented Carbide Product with Cobalt Binder

Trade Name and Synonyms: All IMCO & Menlo USA Carbide Grades

Chemical Family: Refractory Metal Carbide

Molecular Weight: N/A

Formula: Not applicable – mixture

Product Use: Metalworking tools, Metallurgical Products, Powders, and Inserts

Manufacturer Name: IMCO Carbide Tool Inc.

Address: 28170 Cedar Park Blvd
Perrysburg, OH 43551

Phone Number: 800-765-4626

Fax Number: 419-661-6314

2. HAZARDS IDENTIFICATION

Routes of Exposure: In solid form, this material is not hazardous (tools, inserts). Powder or dust generated from grinding of tools or inserts and fumes generated from high-temperature processes are hazardous materials.

Use only with adequate ventilation. Harmful if inhaled. Exposure to dust, powder, or fumes can cause eye, skin, and respiratory tract irritation. Dust or powder can cause respiratory system damage. May cause an allergic skin and/or respiratory reaction. Keep containers containing powders closed. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

Hazard Ratings (For powder or dust)

Hazardous Materials Identification System (HMIS)

National Fire Protection Association (NFPA)

Human Threshold Response Data

Odor Threshold:

Irritation Threshold:

Immediately Dangerous to Life or Health (IDLH) Value(s):

Degree of hazard (0 = Low, 4 = Extreme)

Health = 2; Flammability = 0; Reactivity = 0;

Personal Protection = E; Mixture = Not rated

Unknown

Unknown

The IDLH for this product is not known. The IDLH for cobalt is 20 mg/m³.

Potential Health Effects of Overexposure:

Inhalation: Dust from grinding can cause irritation of the nose and throat. It also has the potential for causing transient or permanent respiratory disease, including occupational asthma and interstitial fibrosis, in a small percentage of exposed individuals. It is reported that cobalt dust is the most probable cause of such respiratory diseases. Symptoms include productive cough, wheezing, shortness of breath, chest tightness and weight loss. Interstitial fibrosis (lung scarring) can lead to permanent disability or death. Certain pulmonary conditions may be aggravated by exposure.

Skin Contact: Material not expected to be absorbed through the skin. Can cause irritation or an allergic skin rash due to cobalt sensitization. Certain skin conditions, such as dry skin, may be aggravated by exposure.

Eye Contact: Can cause irritation consisting of redness, swelling, and pain. May cause conjunctivitis with repeated exposures.

Ingestion: Ingestion of large amounts of dust or powder may cause nausea, diarrhea, and/or stomach pain.

Chronic Effects: Prolonged or repeated skin contact with powder or dust may cause more severe irritation or dermatitis. Prolonged or repeated inhalation of powder, dust or fume may cause more severe irritation and possibly lung damage. Chronic exposure to dust or powder may also lead to the development of permanent, severe, obstructive or fibrotic lung disease characterized by coughing, wheezing, and shortness of breath. Repeated contact with powder or dust may cause an allergic skin reaction consisting of itching, redness, swelling, and rash or urticarial (hives) in sensitized individuals. Prolonged or repeated inhalation of powder, dust or fume may cause an allergic type of asthma reaction characterized by wheezing, coughing, and extreme breathing difficulty in sensitized individuals. Ingestion of large amounts of cobalt may affect the heart, but this type of exposure is not anticipated under normal occupational conditions. Prolonged or repeated exposures to chromium dusts or fumes may cause perforation of the nasal septum, bloody nose and other symptoms of severe nasal irritation. Chronic exposure to high concentrations of vanadium dusts may cause persistent coughing. Greenish discoloration of the extremities or tongue may occur with heavy exposure.

Hazard Pictogram(s):



Signal Word: Danger

Potential Environmental Effects: None known. Product has not been tested for environmental properties.

3. COMPOSITION INFORMATION ON INGREDIENTS

MATERIAL	CAS No.	% by Weight	OSHA PEL	ACGIH TLV-TWA
Tungsten Carbide(*) (limits for Tungsten dust)	12070-12-1	60 – 100	-----	5 mg/m ³
Cobalt	7440-48-4	5 – 30	0.1mg/m ³	0.1mg/m ³
Tantalum Carbide (limits for Tantalum dust)		0.0 – 50	5 mg/m ³	5 mg/m ³
Vanadium Carbide(*)	12070-10-9	0.1 – 1	15 mg/m ³	10 mg/m ³
Chromium Carbide (limits for Chromium(**) dust)	12012-35-0	0.1 – 1	NONE	NONE

*This substance is regulated by OSHA as a Particulate Not Otherwise Regulated (PNOR). The exposure limits listed for both OSHA and ACGIH refer to total dust; the OSHA PEL for the respirable fraction is 5 mg/m³

Additional Exposure Standards: NONE

OSHA Regulatory Status: In solid form - not hazardous. Powder, dust, or fume – irritant, lung and respiratory tract toxin, sensitizer.

4. FIRST AID MEASURES

Inhalation: If symptoms of pulmonary involvement occur (coughing, wheezing, shortness of breath, etc.), remove from exposure immediately and expose to fresh air. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Seek medical attention.

Skin Contact: If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. Remove contaminated clothing and shoes and launder before reuse. If irritation or rash persists, seek medical attention.

Eye Contact: If irritation occurs, flush with copious amounts of water for at least 15 minutes. If irritation persists, seek medical attention.

Ingestion: If swallowed, and person is conscious, dilute with large amounts of water. Get medical attention. Never give anything by mouth to an unconscious or convulsing person. Induce vomiting only if instructed by a physician.

NOTE TO PHYSICIANS: If ingested, administer medicinal absorbent charcoal. In case of respiratory difficulty, administer oxygen therapy. Check victim's state of consciousness, breathing, and pulse. Administer CPR if indicated. There is no specific antidote to the active ingredients in this product; use symptomatic treatment.

5. FIRE-FIGHTING MEASURES

Flash Point: N/A **Test Method Used:** N/A **Flammable Limits:** N/A **LEL:** N/A **UEL:** N/A

Hard Cemented Carbide Product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate and subjected to an ignition source.

Extinguishing Media: For powder fires, smother with dry sand, dry dolomite, ABC-type fire extinguisher, or flood with water.

Special Fire Fighting Procedures: For a powder fire confined to a small area, use a respirator approved for toxic dusts and fumes. For a large fire, fire fighters should use proper respiratory protection and protective fire suits including self-contained breathing apparatus with a full face-piece operated in pressure-demand or other positive-pressure mode. Use unmanned hose holder or monitor nozzles, or withdraw and let fire burn. Use powdered sodium chloride or other suitable dry powder. Avoid breathing fumes from burning material.

Unusual Fire and Explosion Hazards: Dusts may present a fire or explosion hazard under rate-favoring conditions of particle size, dispersion and strong ignition source. However, this is not expected to be a problem under normal handling conditions.

6. ACCIDENT RELEASE MEASURES

Steps to be Taken in Case Material is Released or Spilled: Ventilate area of spill. Always use suitable protective equipment. Clean up using methods which 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.

7. HANDLING AND STORAGE

HANDLING: No smoking, eating, or drinking while using this product. Wash hands thoroughly after handling. Minimize free fall of powder and avoid dispersion of dust in air.

STORAGE: Contents should be stored in a clean, cool area.

PRECAUTIONS: Do not shake clothing, rags, or other items to remove dust. Dust should be removed by washing or HEPA vacuuming.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: Use an 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.

Ventilation: Use local exhaust ventilation which is adequate to limit personal exposure to airborne to levels which do not exceed the PEL or TLV. If such equipment is not available, use respirators as specified above.

Protective Gloves: Protective gloves or barrier cream are recommended when contact with dust or mist is likely. Prior to applying barrier cream or using protective gloves, wash thoroughly.

Eye Protection: Safety glasses with side shields or goggles should be worn.

General Hygiene: Do not eat, drink, or smoke while using this product.

Engineering Controls: Provide local exhaust ventilation or general dilution ventilation to maintain exposure levels below the PEL and TLV.

9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance and Odor:** Dark Gray Metal/No Odor**Boiling Point:** N/A**Specific Gravity (H₂O = 1): (H₂O = 1):** 11.0 to 15.5**Vapor Pressure (mmHg):** N/A**Percent Volatile by Volume:** 0**Vapor Density (Air = 1):** N/A**Evaporation Rate:** N/A**Solubility in Water:** Insoluble**How Best Monitored:** Air Sample**10. STABILITY AND REACTIVITY****Stability:** Stable under normal temperatures and pressure**Conditions to Avoid:** Avoid exposure to heat, sparks, or flame**Incompatibility:** Contact of dust with strong oxidizers, acids, bases.**Hazardous Decomposition Products:** When heated to decomposition, may produce metal oxides and fumes. Inhalation of metal fumes may cause a condition known as “metal fume fever” which is characterized by flu-like symptoms.**Hazardous Polymerization:** Will not occur**11. TOXICOLOGICAL INFORMATION****Potential Exposure Routes:** This product may be encountered through skin contact, eye contact, ingestion, or inhalation of dusts, fumes, or powder.**Acute Animal Data:** The toxicological properties of this product have not been thoroughly investigated.

	<u>For Product</u>	<u>Tungsten Carbide</u>	<u>Chromium Carbide</u>	<u>Cobalt</u>	<u>Vanadium Carbide</u>
Oral LD ₅₀	Believed to be > 2 g/kg	>2 g/kg (rat)	No data	6.171 g/kg (rat)	No data
Dermal LD ₅₀	Believed to be > 2 g/kg	>2 g/kg (rabbit)	No data	No data	No data
Inhalation LC ₅₀	Believed to be harmful if inhaled	>5 mg/l (4 hr., rat)	No data	No data	No data
Irritation	Irritant	Mild eye and skin Irritant	No data	Resp. irritant, skin and resp. Sensitizer	No data

Subchronic/Chronic Toxicity Data: No information for product**Carcinogenicity:** There have been some recent studies of hard metals workers (epidemiology studies) that have reported an association between exposure to hard metals and lung cancer. Because of problems in the designs of these studies, it is not possible to conclusively demonstrate that occupational exposure to hard metal dust causes lung cancer in humans. No long-term studies or cancer studies in laboratory animals exposed to hard metal have been conducted. The International Agency for Research on Cancer (IARC) lists cobalt and cobalt compounds as possibly carcinogenic to humans, group 2B.**Mutagenicity:** Studies conducted in test tubes with white blood cells (lymphocytes) from humans that have been exposed to hard metal powder suggest that there may be a specific interaction between tungsten carbide and cobalt that may cause damage to DNA molecules within the cell's nucleus. However, when lymphocytes from workers exposed to hard metal dust were examined, no changes in the DNA were found.**Reproductive, Teratogenicity, or Developmental Effects:** This product is not known or reported to cause reproductive or developmental effects.**Neurological Effects:** This product is not known or reported to cause neurological effects.**Interactions With Other Chemicals Which Enhance Toxicity:** None known or reported.

12. ECOLOGICAL INFORMATION

Eco toxicity: No data

Mobility: No data

Persistence: No data

Degradability: No data

Bioaccumulation: No data

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of in accordance with appropriate government regulations. Waste may be sold as scrap for reclaim to an appropriate relamation facility.

14. TRANSPORT INFORMATION

DOT/IMO/IATA

Cutting tool – Not classifiable or regulated by DOT

Proper Shipping Name/Hazard Class/UN No./Packing Group/Label

Powder form – May be classifiable or regulated by DOT as a flammable solid or toxic/poisonous substance. If a powder is resold and shipped in the same physical form it was received, appropriate labeling, marking, documenting, and placarding may be needed.

15. REGULATORY INFORMATION

Inventory Status: United States (TSCA) – all ingredients are on the inventory or are exempt from listing

Cercla: None

Sara 313: Cobalt

Sara 312 Hazard Class: Health: Acute – Yes; Chronic – Yes; Fire – None; Reactivity – None; Release of Pressure – None

Sara 302 EHS List: None of the components of this product are listed.

TPQ = Threshold Planning Quantity; **RQ** = Reportable Quantity; *No reporting of release is required if the diameter of the pieces of the solid metal released is equal to or exceeds 100 micrometers.

STATE RIGHT-TO-KNOW STATUS

Component	CA Prop. 65*	Michigan	New Jersey	Pennsylvania	Massachusetts
Cobalt	X	X	X	X	X
Tungsten carbide	Not listed	Not listed	Not listed	Not listed	Not listed
Chromium carbide	Not listed	Not listed	Not listed	Not listed	Not listed
Vanadium carbide	Not listed	Not listed	Not listed	Not listed	Not listed

*** WARNING: This product contains detectable amounts of a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm.**

Canada DSL List: The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.

IDL: Cobalt, Tungsten compounds, n.o.s., Chromium (III) compounds, n.o.s.

WHMIS: D2B. In the form of a pressed and sintered item, this is a manufactured article and is not a "controlled product" under WHMIS

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

User Responsibilities: This SDS provides information consistent with recommended applications of these products and anticipated activities involving the product. It is the user's responsibility to identify and protect against health and safety hazards presented by modification of hardmetal powders and products after manufacture. Individuals handling hardmetal powders should be informed of all relevant hazards and recommended safety precautions and should have access to the information contained in this SDS.

Disclaimer: The information contained herein is based upon data provided by manufacturers and suppliers of raw materials used in the manufacture of hardmetal powders. The information is offered in good faith as accurate and correct, but no representations, guarantees, or warranties of any kind are made as to its accuracy or completeness, suitability for particular applications, hazards connected with the use of the powder, or the results to be obtained from the use thereof. The user assumes all risk and liability of any use or handling of any material. Variations in methods, conditions, equipment used to store, handle, or process the material, and hazards connected with the use of the powder are solely for the responsibility of the user and remain at its sole discretion.

This SDS is intended to be used solely for the purpose of satisfying informational requests made pursuant to Title 29 of the Code of Federal Regulations, Section 1910.1200 et seq. It is the responsibility of the user to provide a safe workplace, to examine all aspects of its operation, and to determine if or where precautions are required.

In case of questions, please call:

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