

INTREPID TOOL IND. INC.

10895 N SOLAR CANYON WAY

SURPRISE, ARIZONA 85379

(623) 414-4800

(800) 998-6565 FAX (623) 414-4798

PRODUCT IDENTIFICATION

PRODUCT NAME: TOOL STEELS

CHEMICAL FAMILY: STEEL

GRADES: High Speed (molybdenum & tungsten), hot work die steels, cold work die steels, hold, shock resisting, water hardening, special purpose.

PHYSICAL DATA

Boiling Point: 5000 Deg. F	Melting Point: Approx 2500 Deg. F
Specific Gravity (H2O=1):	Approx. 7.8-8.2(60 Deg. F) Vapor Pressure: n/a
Vapor Density (AIR=1): N/A	Solubility in H2O: Insoluble
% Volatiles By Volume: N/A	Evaporation (Butylacetate-1): N/A
Appearance and Odor:	Various shapes, solid odorless metal

HAZARDOUS INGREDIENTS

MATERIAL	PERCENT BY WEIGHT	CSA#	OSHA PEL	ACGIH TLV
CHROMIUM	4.4	7440-47-3	0.5	0.50*
IRON	87.1	1309-37-1	10.0	5
MOLYBDENUM	5.3	7439-98-7 7439-98-7	10 Total Dust 5.0 Resp. Fract	10
NICKEL	4	7440-02-0	1.0	1*
VANADIUM	2.1	1314-62-1	.05 (Dust) 0.05 (Fume)	.05*
TUNGSTEN	6.8	7440-33-7	5.0	5

**REGULATED AS A TOXIC CHEMICAL UNDER SECTION 313, SARA TITLE III AND 40FR 372*

HEALTH HAZARD INFORMATION

We do not consider this product in the form it is sold to constitute a physical hazard or a health hazard. Subsequent operations such as abrading, melting, welding, cutting or processing in any other fashion that causes a release of dust or fume may cause some of the ingredients to change to a form which could affect exposed workers.

PRIMARY ROUTES OF ENTRY: Inhalation, eye contact, skin contact, and ingestion.

EMERGENCY FIRST AID:

Remove to fresh air, if condition continues, consult a physician. Flush well with running water to remove particulate, get medical attention. Brush off excess dust, wash area well with soap and water, and seek medical help if large quantities of material have been ingested.

EFFECTS OF OVEREXPOSURE:

ACUTE:

Short term overexposure to the dust, fumes and/or oxides of certain components of steel products may cause irritation of the eyes, nose, throat or may result in metal fume fever characterized by a metallic or sweet taste, dryness and irritation of the throat, wheezing, discoloration of the tongue and flu-like symptoms.

CHRONIC:

Excessive and prolonged overexposure to the dust fumes and/or oxides of certain components of steel products may result in chronic interstitial pneumonitis, discoloration of the skin and hair; allergic bronchitis, neoplasms or loss of coordination and balance.

ACUTE:

Carbon (C) – irritation of eyes and mucous membranes. Manganese (Mn) irritation of eyes, nose and throat, metallic taste in the mouth, acute pneumonitis (respiratory disease). Iron (Fe) – irritation of eyes, nose, throat and metal fume fever. Chromium (Cr) – irritation of eyes and mucous membranes, dermatitis, skin ulcers and nasal septum perforation. Nickel (Ni) – irritation of eyes, mucous membranes, dermatitis, “nickel itch), pulmonary edema, asthma, headache and vomiting. Molybdenum (Mo) – irritation of eyes, mucous membranes. Vanadium (V) – as vanadium pentoxide dust or fumes, it may cause irritation of eyes, nose and respiratory tract. Aluminum (Al) – possible irritation of eyes and mucous membranes. Cobalt (Co) – irritation of eyes and mucous membranes. Copper (Cu) – irritation of eyes, nose, throat, and metal fume fever. Boron (B) – irritation of nose and throat. Tantalum (Ta) – dust may cause slight irritation to eyes, nose and throat. Titanium (Ti) – considered a physiologically inert dust; however, high concentrations may cause irritation of eyes and mucous membranes. Tungsten (W) – no adverse health effects have been in humans.

CHRONIC:

Carbon (C)- irritation of eyes and mucous membranes manganese (Mn) inhalation of fumes and dust can cause central nervous system disturbance, increase upper respiratory disorders and infection, cumulative lung damage, psychiatric disorders, liver cirrhosis and anemia.

HAZARD DATA - CONTINUED

Iron (Fe) – inhalation of iron oxide fumes and dust may cause chronic bronchitis, conjunctivitis, choroiditis, retinitis and siderosis of tissues. Chromium (Cr) – the toxicity and health hazards of chromium are heavily dependent upon its oxidation state. Trivalent and divalent chromium, as in chromium metal and chromium containing alloys have a low order of toxicity. The hexavalent form rhinitis to perforation of the nasal septum reported carcinogen. Nickel (Ni) – nickel dust or fume can cause sensitization dermatitis, “nickel-itch”, and may cause cancer of the paranasal sinuses and lungs. Molybdenum (Mo) – human industrial poisoning by molybdenum has yet to be reported.

CHRONIC:

Vanadium (V) – as vanadium pentoxide dust or fumes, it may cause irritation of eyes, nose and respiratory tract (more severe than acute exposure), chronic bronchitis and allergic skin rash. Aluminum (Al) – possible irritation of eyes and mucous membranes, reported as a cause of pulmonary fibrosis. Cobalt (Cu) – may cause allergic skin rashes and respiratory disease. Copper (Cu) – skin irritation, discoloration of the skin or the hair and metal fume fever. Boron (B) – possible irritation; discoloration of the skin or the hair and metal fume fever. Boron (B) possible irritation of the respiratory tract and nose bleeds. Tantalum (Ta) – dust maybe a slight irritant to eyes, nose and throat. Titanium (Ti) – considered a physiologically inert dust; however, high concentration may cause irritation of eyes and mucous membranes. Tungsten (W) – no adverse health effects have been reported in humans.

CARDINOGENICITY:

	NTP	IARC MONOGRAPHS	OSHA REGULATED
Chromium (Cr)	Yes	Yes	Yes Pel Established
Nickel (Ni)	Yes	Yes	Yes Pel Established

REACTIVITY DATA

Stability: chemically stable

Incompatibility: reacts with strong acids to generate hydrogen gas

Hazardous Decomposition Products: metallic oxides

SPILL OR LEAK PROCEDURES

Steps to be taken in case of release or spill: n/a

Waste Disposal Method: dust, etc. follow federal, state and local regulations regarding disposal

SPECIAL PROTECTION INFORMATION

Ventilation Requirements: general – recommended, local – as required

Personal Protective Equipment:

Respiratory Protection: If fumes, misting or dust condition occurs and TLV as indicated in section II is exceeded, provide NIOSH approved respirators.

SPECIAL PRECAUTIONS

Use good housekeeping practice to prevent accumulations of dust and to keep airborne dust concentration at a minimum.

In case of questions please call:

Intrepid Tool Ind. Inc.
Bret. Tayne
(623) 414-4800

Issue Date: _____

Although Intrepid Tool Ind. Inc. has attempted to provide current and accurate information herein, Intrepid Tool Ind. Inc. makes no representation regarding the accuracy of completeness of the information and assumes no liability for any loss, damage or injury of any kind which may result from or arises out of the use of or reliance on the information by any person.

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PRODUCT IDENTIFICATION

PRODUCT NAME: CEMENTED CARBIDE PRODUCT WITH COBALT BINDER

CHEMICAL FAMILY: REFRACTORY METAL CARBIDE

GRADES: All talide carbide grades.

PHYSICAL DATA

Appearance and Odor:	Dark Grey Metal/ No Odor
Boiling Point:	N/A Specific Gravity (H ₂ O=1): 10.2 to 15.5
Vapor Pressure (mm Hg):	N/A Percent volatile by volume: 0
Vapor Density (Air=1)	Evaporation Rate: N/A
Solubility in Water:	Insoluble How Best Monitored: Air Sample

HAZARDOUS INGREDIENTS

MATERIAL	PERCENT BY WEIGHT	CSA#	OSHA PEL	ACGIH TLV
TUNGSTEN CARBIDE	53-97%	7440-33		5mg/m ³
(LIMITS FOR CARBIDE DUST)				
COBALT	3-25%	7440-48-4	0.5mg/m ³	0.02 mg/m ³
TANTALUM CARBIDE	0.0-50%	7440-25-7	5mg/m ³	5mg/m ³
(LIMITS FOR TANTALUM DUST)				
CHROMIUM CARBIDE	0.05-1%	7440-47-3	1mg/m ³	0.5mg/m ³
(LIMITS FOR CHROMIUM (+3) DUST)				
CHROMIUM (+3)	0.0-4.5%	7440-47-3	1mg/m ³	0.5mg/m ³

**DEPENDS ON GRADE SPECIFICATIONS*

HEALTH HAZARD INFORMATION

ROUTES OF EXPOSURE:

Grinding cemented tungsten carbide product will produce dust of potentially hazardous ingredients which can be inhaled, swallowed or come in contact with the skin and eyes.

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 fibroses, 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 fibroses (lung scarring) can lead to permanent disability or death.

Skin Contact – can cause irritation or an allergic skin rash due to cobalt sensitization. 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.

Eye Contact – can cause irritation. If irritation occurs, flush with copious amounts of water. If irritation persists seek medical attention.

Ingestion – reports outside the industry suggest that ingestion of significant amounts has the potential for causing blood, heart and other organ problems. If substantial quantities are swallowed dilute with large amounts of water, induce vomiting and seek medical attention.

Emergency and First Aid Procedures: applicable for dusts and/or mists.

Inhalation – if symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.), remove from exposure and seek medical attention.

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, Other): IARC and NIOSH have indicated that cobalt metal is a suspected human carcinogenic. Be especially cautious of inhaling mist from wet grinding.

SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: maintain good housekeeping procedures to prevent dust accumulation during grinding. Avoid dust inhalation and direct skin contact with dust.

Other precautions. Clean up using methods that avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels which exceed the OSHA PEL or the ACGIH TLV), wet dust mop or wet clean up. If airborne dust is generated, use an appropriate NIOSH approved respirator. Wash hands thoroughly after handling, before eating or smoking. Wash exposed skin at the end of work shift. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming (with appropriate filters), the clothing, rags, or other items.

Periodic medical examinations are recommended for individuals regularly exposed to dust or mist.

REACTIVITY DATA

STABILITY

UNSTABLE

STABLE **X**

Conditions to Avoid: N/A

INCOMPATIBILITY: Contact of dust with strong oxidizers may cause fire or Explosions.

Materials to avoid: strong acids

HAZARDOUS DECOMPOSITION PRODUCTS:

None

HAZARDOUS POLYMERIZATION:

MAY OCCUR

WILL NOT OCCUR **X**

Conditions or avoid: N/A

SPILL OR LEAK PROCEDURES

Steps to be taken in case material is release or spilled: ventilate area of spill. Clean up using methods with avoid dust generation such as vacuum (with appropriate filter to prevent airborne dust levels with exceed the OSH PEL or the ACGIH TLV0, wet dust mop or wet clean up. If airborne dust is generated, use an appropriate NIOSH approved respirator.

Waste Disposal Method: Dispose in accordance with appropriate government regulations. May be sold as scrap for reclaim.

SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use and appropriate NIOSH approved respirator if airborne dust concentrations exceed the appropriate OSHA PEL or the ACGIH 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 dust levels, which do not exceed the OSHA PEL or ACGIH 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 the barrier cream or use of protective gloves, wash thoroughly.

Eye Protection: Safety glasses with side shields or goggles are recommended.

Other Protective Equipment: N/A

SPECIAL PRECAUTIONS

FLASH POINT: N/A Test Method Used – Flammable Limits: N/A LEL: ___ UEL: ___

Hard cemented carbide product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate and are subjected to an ignition source.

Extinguishing media: For powder fires smother with dry sand, dry dolomite, ABC type 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 self-contained breathing apparatus.

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

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