

SAFETY DATA SHEET

Revised: March 2021

Section 1: Identification:

Company Address: 2505 Kennedy Drive, Beloit WI 53511-6903

Telephone: (608) 363-7888

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Chemical Name: Mixture.

Tool Steel: High Speed Steel, M2, D2, H13, 4140.

Products: Cutterheads, woodworking knives, finger joint cutters, milled to pattern bits and router bits.

Section 2: Hazards Identifications



2.1 Symbol

Signal Word: Danger.

Hazard Statement: May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes damage to organs through prolonged or repeated exposure.

Emergency Overview: During normal operation and usage, tool steel products do not present inhalation or ingestion hazards. However, grinding tool steel products will produce dusts of potentially hazardous ingredients which can be ingested, inhaled or come into contact with the skin and eyes.

2.2 OSHA Regulatory Status

Dusts and mists generated during grinding of this material are considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

2.3 Potential Health Effects

Eye Contact: May cause eye irritation.

Skin Contact: May cause skin irritation or allergic skin rash.

Inhalation: May cause irritation of the upper respiratory system.

Ingestions: May cause systemic effects.

2.4 Potential Environmental Effects

No data available at this time.

Section 3: Composition/Information on Ingredients

Iron: CAS# 7439-89-6; 60-99%

Tungsten: CAS# 7440-33-7; .01-19%

Nickel: CAS# 7440-02-0; 1-37%

Chromium: CAS# 7440-47-3; 2-27%

Vanadium: CAS# 7440-62-2; 0.3-18%

Cobalt: CAS# 7440-48-4; 0.5-15%

Manganese: CAS# 7439-96-5; 1-13%

Molybdenum: CAS# 7439-98-7; 1-11%

Silicon: CAS# 7440-21-3; 0.4-5%

Carbon: CAS# 7440-44-0; 0.5-3.5%

Aluminum: CAS# 7429-90-5; 0.5-3%

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Section 4: First Aid Measures

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 First Aid Procedures

Eye contact: Flush eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15 to 20 minutes). If irritation persists, seek medical attention.

Inhalation: If symptoms of pulmonary involvement develop (i.e., coughing, wheezing, shortness of breath), remove from exposure and seek medical attention.

Ingestion: If substantial quantities are swallowed, dilute with a large amount of water, induce vomiting, and seek medical attention.

Skin contact: After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, contact a physician.

4.2 Note to Physicians

Respiratory disorders may be aggravated by exposure to metallic dusts or fumes.

Primary Routes of Entry: Skin contact, eye contact, inhalation, ingestion.

Most symptoms: Rash. Difficulty in breathing. May cause an allergic skin reaction. Dermatitis. Prolonged exposure may cause chronic effects.

Section 5: Fire Fighting Measures

5.1 General Fire Hazards

See section 9 for flammability properties. This material will not burn. Fine dusts of this material mixed with oxygen and a suitable source of ignition may pose an explosion hazard.

5.2 Extinguishing Media

5.2.1 Suitable Extinguishing Media

Special powder against metal fires. Dust: extinguish with foam, carbon dioxide, dry powder or water fog.

5.2.2 Unsuitable Extinguishing Media

Water may react with metal dust or powder and release flammable hydrogen gas.

5.3 Protection of Firefighters

5.3.1 Firefighting instructions

Move containers from fire area if you can do so without risk. Use standard firefighting procedures and consider the hazards of other involved materials.

5.3.2 Protective Equipment for Firefighters

Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing.

5.3.3 NFPA Ratings

Health 1; Fire 0; Reactivity 0

Hazard Scale: 0=Minimal; 1=Slight; 2=Moderate; 3=Serious; 4=Severe

Section 6: Accidental Release Measures

6.1 Personal Precautions

If airborne dust is present, use personal protection recommended in section 8.

6.2 Environmental Precautions

Do not allow to enter into surface water or drains.

6.3 Methods for Containment

Containment of this material should not be necessary.

6.4 Methods for Clean-Up



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Clean up using methods that avoid dust generation such as a vacuum with a HEPA filter, wet mop, or wipe. Place in suitable clean, dry container for later disposal or reclamation.

6.5 Other Information

Not Applicable.

Section 7: Handling and Storage

7.1 Handling

Avoid dispersion of grinding dust and particles into the air. Do not breathe dust. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling, before eating or smoking. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming.

7.2 Storage

Material should be stored in a clean, cool area. Do not store with acids, oxidizing agents and reducing agents.

Section 8: Handling and storage

8.1 Exposure Guidelines under OSHA

Iron: CAS# 7439-89-6; Type PEL; Value 10mg/m³ (iron oxide and fume)

Tungsten: CAS# 7440-33-7; Type TWA; Value 5mg/m³

Nickel: CAS# 7440-02-0; Type PEL: Value 1mg/m³ (nickel metal and insoluble compounds)

Chromium: CAS# 7440-47-3; Type PEL: Value 1mg/m³ (chromium metal and insol. Salts, as CR)

Vanadium: CAS# 7440-62-2; Type TWA: Value 0.5mg/m³ (respirable dust, as V2O5)

Cobalt: CAS# 7440-48-4; Type PEL: Value 0.1 mg/m³

Manganese: CAS# 7439-96-5; Type PEL: Value 5mg/m³ (as fume and Mn compounds)

Molybdenum: CAS# 7439-98-7; Type PEL: Value 15 mg/m³ (as total dust, PNOR)

Silicon: CAS# 7440-21-3; Type PEL: Value 15mg/m³ (total) 5mg/m³ (resp.)

Carbon: CAS# 7440-44-0; Type TWA: Value 2mg/m³ (respirable fraction)

Aluminum: CAS# 7429-90-5; Type TWA: Value 1mg/m³ (respirable fraction)

8.2 Engineering Controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. Provide general or local exhaust ventilation systems to minimize airborne concentrations. Provide sufficient general/local ventilation in pattern/volume to control inhalation exposures below the current exposure limits.

8.3 Personal Protective Equipment

8.3.1 Eye/Face Protection

Safety glasses with side shields are recommended.

8.3.2 Skin Protection

Protective gloves are recommended when contact with dust or mist is likely. Prior to donning gloves, wash hands thoroughly.

8.3.3 Respiratory Protection

Use an appropriate NIOSH approved respirator when airborne dust concentrations exceed the appropriate PEL or TLV. All applicable requirements set forth in 29 CFR 1910.134 should be met.

8.3.4 General Hygiene Considerations

Avoid breathing dust. Avoid contact with skin, eyes and clothing. Wash hand thoroughly after handling and before eating or smoking.

Section 9: Physical and Chemical Properties

Physical state: Solid.

Color: Steel gray.

Odor: Odorless.



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Melting Point: 2795°F
Boiling Point: 5432°F
Flammability (solid, gas): Non-flammable.
Relative Density: 7.4-8.8 (contact WKW for specific grades).
Solubility: No data available.
Auto-ignition temperature: Not self-igniting.
Decomposition temperature: Not applicable.
Explosive properties: Not explosive.
Oxidizing properties: Not oxidizing.
pH: Not available.

Section 10: Stability and Reactivity

10.1 Chemical Stability

Stable under normal conditions of temperature and pressure.

10.2 Conditions to Avoid

Avoid exposure to generated dust and/or fume.

10.3 Incompatible Materials

Strong oxidizing agents.

10.4 Hazardous Decomposition Products

Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides.

10.5 Possibility of Hazardous Reactions

Will not occur under normal conditions.

Section 11: Toxicological Information

Eye contact: Dust in eyes may cause irritation.

Skin contact: Under normal conditions of intended use, this material does not pose a risk to health. Dust may irritate skin.

Inhalation: No inhalation hazard in manufactured and shipped state. Dust and fumes generated from the material can enter the body by inhalation. High concentrations of dust and fumes may irritate the throat and respiratory system and cause coughing. Frequent inhalation of fume/dust over a long period of time increases the risk of developing lung disease.

Ingestion: Not relevant due to the form of the product in its manufactured and shipped state. However, ingestion of dusts generated during working operations may cause nausea and vomiting.

Iron: Iron oxide can be generated during arc welding of this product. Chronic inhalation of excessive concentrations of iron oxide fumes and dusts may result in development of a benign pneumoconiosis called siderosis, which is observable as an X-ray change. No physical impairment of lung function has been associated with siderosis. Inhalation of excessive concentrations of iron oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Acute exposure to the eyes may result in mild conjunctivitis.

Tungsten: Chronic exposure to tungsten dust has been reported to cause pulmonary fibrosis characterized by cough, labored breathing and wheezing. Dermatitis primarily on the sides of the neck, inner forearm and backs of the hands, was also reported. Dusts of tungsten pose a hazard considered to be somewhat greater than that of a nuisance dust.

Nickel: Nickel fumes are respiratory irritants and have been a known cause of asthma, pneumonia, pulmonary edema and pulmonary fibrosis in welders using nickel alloys. Airborne nickel contaminated dusts are regarded as capable of producing lung cancer. Skin contact may cause an allergic rash. Nickel itch is the dermatitis resulting from sensitization to nickel. Itching can occur up to seven days before skin eruption occurs. The primary skin eruption is reddening or infection of hair follicles, which may be followed by skin ulceration. Nickel sensitivity, once acquired, is apparently not lost.

Chromium: The health hazards associated with exposure to chromium are dependent on its oxidation state. The metal form (chromium as it exists in this product) is of very low toxicity.



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Vanadium: The health hazards associated with exposure to vanadium are dependent on its oxidation state. The product contains elemental vanadium. Elemental vanadium could be oxidized to vanadium pentoxide during welding. The pentoxide form is more toxic than the elemental form. Chronic exposure to vanadium pentoxide dust and fumes may cause severe irritation of the eyes, skin, upper respiratory tract, persistent inflammation of the trachea and bronchi, pulmonary edema, and systemic poisoning. Signs and symptoms of overexposure include: conjunctivitis, nasopharyngitis, cough, labored breathing, rapid heartbeat, lung changes, chronic bronchitis, skin pal, greenish-black tongue, and an allergic skin rash.

Cobalt: Inhalation of cobalt metal fumes and dust causes irritation of the nose and throat. Cobalt dust may cause an asthma-like disease with symptoms ranging from cough, chronic bronchitis, shortness of breath and labored breathing, to decreased pulmonary function, nodular scarring of the lung tissue, permanent disability, and death. Exposure to cobalt may cause weight loss, dermatitis (inflammation of the skin), and respiratory hypersensitivity.

Manganese: Chronic exposure to high concentrations of manganese fumes and dusts may increase the incidence of pneumonia and lung damage and may adversely affect the central nervous system with symptoms including sleepiness, weakness, emotional disturbances, spastic walk, mask-like facial expressions and paralysis.

Molybdenum: Dust of metallic molybdenum has caused difficulty breathing, general weakness, dizziness, chest pain, expectoration, fatigue, headache, anorexia, and joint and muscle pain. Molybdenum has caused anemia and poor growth in experimental animals. Molybdenum may also cause pneumoconiosis and irritation to the lungs and eyes. In rats, dusts of metallic molybdenum have caused growth, depression and thickening of intra-alveolar septa, which contained connective tissue fibers.

Silicon: Elementary silicon is an inert material. Slight pulmonary lesions have been reported in laboratory animals from injections of silicon dust within the trachea. Silicon dust has little adverse effect on lungs and does not appear to produce significant organic disease or toxic effects when exposures are kept under the TLV. Silicon may cause chronic respiratory effects if repeated overexposure occurs.

Carbon: Elemental carbon, as it exists in the product, is of very low toxicity.

Aluminum: Excessive exposures to aluminum metal fumes and dust have been associated with scarring of the lung tissue and respiratory irritation, but this effect may be due so simultaneous silica exposure.

Section 12: Ecological Information

Ecotoxicity: Metals in massive forms presents a limited hazard for the environment.

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulative potential: No data available.

Mobility on soil: Not relevant, due to the form of the product.

Other adverse effects: No other adverse environmental effects are expected from this component.

Section 13: Disposal Considerations

Disposal Instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with regulations in the area of disposal.

Hazardous waste code: The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residuals/unused products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. The material and its container must be disposed of in a safe manner.

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.



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Section 14: Transport Information

DOT: Not regulated as dangerous goods.

Hazardous Classification: Not applicable.

Proper Shipping Name: Not applicable.

Packing Group: None.

Labeling Requirements: Not applicable.

Section 15: Regulatory Information

OSHA: No regulated.

Toxic Substances Control Act: Not regulated.

CERCLA 40 CFR 302: Chromium, Manganese and Nickel are all listed.

SARA Title III: Not listed.

Section 16: Other Information

Wisconsin Knife Works makes no representations regarding the accuracy or completeness of the information contained herein, and assumes no liability or responsibility in connection with the information contained herein or for any loss, damage, injury of any kind including death, which may result from or arise out of the use of or reliance on this information or any products or materials. The buyer assumes all risk in connection with the use and handling of the products and materials.

Any comments or questions should be directed to:

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