



Material Safety Data Sheet

Product No. 29-41, 8079, 91580, 9573, Nb, Niobium Products

Issue Date (06-08-11)

Review Date (05-03-12)

Section 1: Product and Company Identification

Product Name: Niobium Products

Synonym: Nb

Company Name

Ted Pella, Inc., P.O. Box 492477, Redding, CA 96049-2477

Domestic Phone (800) 237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)

International Phone (01) (530) 243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)

Chemtrec Emergency Number 1-800-424-9300 24 hrs a day.

Section 2: Composition / Information on Ingredients

Principle Hazardous Component(s) (chemical and common name(s)) (Cas. No)	%	OSHA PEL mg/m3	ACGIH TLV mg/m3	NTP	IARC	OSHA regulated
Niobium (7440-03-1)	0-100	NE	NE	No	No	No

Targets: 99.95 %

Occupational Exposure Limits for inert or nuisance dust: 15 mg/m³

Section 3: Hazard Identification

Emergency overview

Appearance: Lustrous, steel gray metal.

Immediate effects: ND

Potential health effects

Primary Routes of entry: Powders or Dust: Inhalation and Ingestion

Signs and Symptoms of Overexposure: ND

Eyes: May cause transient, mechanical irritation.

Skin: May cause irritation.

Ingestion: Metallic niobium has a low order of toxicity due to poor absorption from stomach and intestine.

Inhalation: May cause irritation of the mucous membranes. Inhaled particles may be retained in the lungs.

Chronic Exposure: Chronic eye exposure may cause conjunctivitis. Niobium crosses the placental barrier in animals.

Chemical Listed As Carcinogen Or Potential Carcinogen: None listed.

See Toxicological Information (Section 11)

Potential environmental effects

See Ecological Information (Section 12)

Section 4: First Aid Measures

If accidental overexposure is suspected

Eye(s) Contact: Dust or powder should be flushed from the eyes with copious amounts of clean water. If irritations persist obtain medical assistance. Contact lenses should not be worn if working with metal dust and powders.

Skin Contact: Skin cuts and abrasions can be treated standard first aid. Skin contamination with dust or powder can be removed by washing with soap and water. If irritation persists obtain medical assistance.

Inhalation: Breathing difficulty caused by inhalation of dust or fume requires removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical assistance at once.

Ingestion: If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention.

Note to physician

Treatment: ND

Medical Conditions generally Aggravated by Exposure: ND

Section 5: Fire Fighting Measures

Flash Point: ND

Flammable Limits: Upper: ND, Lower: ND

Auto-ignition point: Solid metal will not ignite. High surface area material such as 5 micron powder may auto-ignite at room temperature.

Fire Extinguishing Media: To extinguish metal powder fire use dry sand, dry graphite, dolomite, soda ash, sodium chloride or other type "D" fire extinguishing powder

Special Fire Fighting Procedures: **DO NOT USE water, foam, carbon dioxide or halocarbon.** Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Wear reflective heat resistant suit. Isolate burning material. It is advisable to allow fires to burn out, keeping fire from spreading

Unusual Fire and Explosion Hazards: Do not spray water on burning fines, chips or powder as a violent explosion may result. The hazard increases with finer particles.

Carbon dioxide is not effective in extinguishing burning niobium.

Hazardous combustion products: The above reaction with incompatible materials will generate hazardous reaction products such as flammable hydrogen, toxic fumes of nitrogen oxides or corrosive niobium halide vapors (See section 10).

DOT Class: Flammable (Powder or Dust)

Section 6: Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled: In solid form this material poses no special clean-up problems. If this material is in powder or dust form, Caution should be taken to minimize airborne generation of powder or dust and avoid contamination of air and water. Properly label all materials collected in waste container. Recycle material.

Waste Disposal Methods: Dispose of waste according to Federal, State and Local Regulations.

Section 7: Handling and Storage

Precautions to be Taken in Handling and Storage: Store and handle in accordance with all current regulations and standards. Store away from incompatible substances, such as oxidizers and mineral acids. Use methods to minimize dust. Machining of niobium may result in fine turnings, chips or dust. Any material with dimension of less than 0.001 inch is flammable. Keep away from source of ignition. Do not accumulate large quantities of fines or machining residues. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking.

Storage temperature: Ambient.

Storage Pressure: NA

Section 8: Exposure Controls / Personal Protection

Engineering Controls

Ventilation required: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection Equipment

Respiratory protection: Wear appropriate NIOSH-approved respirator if dust or fume exposure levels are exceeded

Protective gloves: Wear protective gloves

Skin protection: Wear protective clothing and do not blow dust off clothing or skin with compressed air.

Eye protection: Wear protective goggles, face shield, or safety glasses

Additional clothing and/or equipment: Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

Exposure Guidelines

See Composition/Information on Ingredients (Section2)

Section 9 Physical and Chemical Properties

Appearance and Physical State: Lustrous, steel gray metal, or powder

Odor (threshold): No odor.

Specific Gravity (H₂O=1): 8.57 gm/cc

Vapor Pressure (mm Hg): NA

Vapor Density (air=1): NA

Percent Volatile by volume: NA

Evaporation Rate (butyl acetate=1): NA

Boiling Point: 5127 °C

Freezing point / melting point: 2468 °C

pH: NA

Solubility in Water: Insoluble.

Molecular Weight: NA

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: None reported

Materials to Avoid (Incompatibility): Niobium metal is rapidly dissolved by hydrofluoric acid or hydrofluoric-nitric acid mixtures. Niobium ignites in cold fluorine, and above 200 ° C will react exothermically with chlorine, bromine and halocarbons such as carbon tetrachloride, carbon tetrafluoride and freons.

Hazardous Decomposition Products: The above reaction with incompatible materials will generate hazardous reaction products such as flammable hydrogen, toxic fumes of nitrogen oxides or corrosive niobium halide vapors.

Hazardous Polymerization: Will not occur

Section 11: Toxicological Information

Results of component toxicity test performed: ND

Human experience: ND

This product **does not** contain any compounds listed by NTP or IARC or regulated by OSHA as a carcinogen.

Section 12: Ecological Information

Ecological Information: ND

Chemical Fate Information: ND

Section 13 Disposal Considerations

RCRA 40 CFR 261 Classification: ND

Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

Section 14: Transportation Information

Rod, Wire, Sheet, Foils: Not Regulated.

US DOT Information: Proper shipping name: Metal powders, flammable, n.o.s. (Niobium powder)

Hazard Class: 4.1

Packaging group: II

UN Number: UN3089

Limitations: Powder forms

IATA: Proper shipping name: Metal powders, flammable, n.o.s. (Niobium powder)

Hazard Class: 4.1

Packing group: II

UN Number: UN3089

Limitations: Powder forms

IMO: Proper shipping name: Metal powders, flammable, n.o.s. (Niobium powder)

Class: 4.1

UN Number: UN3089

Packing group: II

Marine Pollutant: No

Canadian TDG: Metal powders, flammable, n.o.s. (Niobium powder)

Section 15: Regulatory Information

United States Federal Regulations

MSDS complies with OSHA's Hazard Communication Rule 29, CFR 1910.1200.

SARA: ND

SARA Title III: ND

RCRA: ND

TSCA: Listed

CERCLA: ND

State Regulations

California Proposition 65: None

International Regulations

Canada WHMIS: ND

Europe EINECS Numbers: ND

Section 16: Other Information

Label Information: ND

European Risk and Safety Phrases: ND

European symbols needed: ND

Canadian WHMIS Symbols: ND

HMIS® Hazard Rating: Health: **0**; Flammability: **0**; Reactivity: **0**

(0=least, 1=Slight, 2=Moderate, 3=High, 4=Extreme)

Abbreviations used in this document

NE= Not established

NA= Not applicable

NIF= No Information Found

ND= No Data

Disclaimer

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