

NIOBIUM NITRIDE

Section I

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Chemical Name and Synonyms Niobium Nitride		Date of Last Revision 5/8/90	
Formula NbN	Chemical Family Metal Nitride	Chemical Abstract No. 24621-21-4	
TSCA Listed in the EPA TSCA Inventory		Calc. Molecular Wt. 106.913	

Section II Hazardous Ingredients

Hazardous Ingredients	CAS #	%	TLV	OSHA PEL
Niobium Nitride	24621-21-4	100	ND	ND
All niobium materials may include typically 0.1-1% tantalum unless specified				

Section III Physical Data

Boiling Point (0°C): ND	Density (gmcc): 8.4
Vapor Pressure: NA	% Volatile by Volume: NA
Reaction with Water: May generate NH ₃	Evaporation Rate (H ₂ O -1): NA
Solubility in Water: Insoluble	Melting Point (°C): 2573
Appearance and Odor: Black crystalline powder	Other Comments: Material may generate flammable NH ₃ gas on contact with moisture/water

Section IV Fire & Explosion Hazard Data

Flash Point (method) NA	Autoignition Temp. ND	Flammability slight hazard on contact with water/moisture	LEI ND	UEI ND
Extinguishing Media: DO NOT USE WATER! Use dry chemical, CO ₂ .				
Special Fire Fighting Procedures: Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.				
Unusual Fire and Explosion Hazards: Material may generate flammable NH ₃ gas on contact with water/moisture. Material may also generate toxic fumes if involved in a fire.				

Section V Spill or Leak Process

Steps to be Taken in Case Material is Released or Spilled: Wear a self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred, insure proper ventilation is available and that water/moisture are kept out of the area. Vacuum up the spill using a high efficiency unit and place in a container for proper disposal. Take care not

to raise dust.

Waste Disposal Method (Consult federal, state or local authorities for proper disposal procedures.): Dispose of in accordance with applicable federal, state and local regulations.

Section VI Health Hazard Data

Toxicity Data -- No data on this compound
Symptoms of acute lanthanide intoxication in rats are immediate defecation, writing, ataxia, sedation, labored respiration and reduced activity. Death is mainly due to respiratory and cardiac failure. Chronic intoxication causes renal and hepatic derangement and longer coagulation times. May be caustic and damaging to cornea by discoloration. Parenteral injection leads to lowered liver glycogen and blood glucose levels.

HMIS Hazard Rating
Health: 3
Flammability: 0
Reactivity: 2
Personal Protection: H

Route(s) of Entry Inhalation: X Skin: X Ingestion: X

Effects of Overexposure (acute and chronic)
Inhalation: Possibly irritating, mildly.
Dermal: Irritating to wet or sweaty skin.
Eye Contact: Irritating. May cause inflammation, watering. May cause conjunctivitis.
Other (specify): Niobium and its compounds are generally non-toxic. Niobium nitride may liberate ammonia on contact with stomach acid.

Medical Conditions Generally Aggravated by Exposure: Previous skin and respiratory disorders.

Carcinogenicity: None NTP: No IARC Monographs: No OSHA Regulations: No

Emergency and First Aid Procedures
Ingestion: Give 2 cups water and induce vomiting for ingestion of large amounts. Seek medical attention.
Inhalation: Remove to fresh air, give oxygen if breathing is difficult. Seek medical attention.
Skin Contact: Wash affected area with soap and water. Seek medical attention if symptoms persist.
Eye Contact: Flush affected eye with lukewarm water for 15 minutes and seek medical attention.

Section VII Reactivity Data

Stable:X Unstable: Conditions Contributing to Instability: Moisture, heat

Incompatibility (materials to avoid): H₂O/moisture, strong acids and bases.

Hazardous Decomposition Products - Thermal and Other (list): NO_x, NH₃

Hazardous Polymerization
May Occur: Will Not Occur: X Conditions to Avoid: Moisture, heat, incompatible materials

Section VIII Special Protective Information

Respiratory Protection (specify type). Use Only Niosh Approved Equip.
Wear NIOSH-approved dust-mist-fume cartridge respirator.

Ventilation (always maintain exposure below permissible limits)
Local Exhaust: Maintain low exposure levels Other: NA
Mechanical (general): Recommended Special: Handle in dry, inert atmosphere

Protective Gloves: Neoprene	Eye Protection: Safety Glasses
Other Protective Equipment/Work Practices: Wear protective apparel to prevent contamination of skin and clothes.	

Section IX Special Precautions

Precautions to be Taken in Handling and Storing: Store in a cool, dry location. Wash hands and face thoroughly after handling and before meals.	
Transportation Requirements	
DOT Class: Not classified	UN Number: Not classified
IMCO Class: Not classified	Other: SPC, Corrosive

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ND = NO DATA FOUND NA = NOT APPLICABLE