

Material Safety Data Sheet

Identity: Niobium

Formula: Nb

SECTION I - GENERAL INFORMATION

Manufacturer: [Stanford Advanced Materials](#) (SAM)

The information below is believed to be accurate and represents the best information available to SAM. However, SAM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular weight: 92.91

CAS #	OSHA PEL	ACGIH TLV	Other	%
7440-03-1	N/A	N/A		0-100%

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: 5127 °C

Vapor Pressure (vs. air or mmHg): N/A

Melting Point: 2458 °C

Vapor Density(vs. air=1):

Evaporation Rate: N/A

Percent Volatile:

Solubility in water: Insoluble

Specific Gravity:(H₂O=1): 8.57 gm/cc at 22 °C

Appearance and odor: Grey powder or pieces, no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: N/A

Explosive Limits: LEL: N/A

UEL: N/A

Extinguishing Media: Use class D or other metal extinguishing agent.

Special Fire Fighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire and Explosion Hazards: Niobium metal powder below 5 microns may be pyrophoric. May be flammable in the form of dust by chemical reaction or when exposed to flame. Ignites in fluorine or chlorine. Incandescent reaction with bromine trifluoride.

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (stability): None

Incompatibility: Halogens and interhalogens.

Hazardous Decomposition or Byproducts: Hydrogen, fumes of nitrogen oxide, corrosive niobium halide vapors.

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

SECTION VI - HEALTH HAZARD DATA

Routes of entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? No Other? No

Health Hazards (Acute and Chronic):

Inhalation: May cause red, dry, sore throat and/or more.

Ingestion: No acute or chronic health effects recorded. *Skin:*

May cause redness and inflammation.

Eye: May cause redness, itching, and watering.

Target Organ: May effect kidneys and lungs

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Medical Conditions Aggravated by Exposure: Pre-existing respiratory disorders.

Emergency and First Aid Procedures:

Inhalation: Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention

Ingestion: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

Skin: Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist.

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Wear appropriate respiratory and protective equipment specified in section VIII-Control Measures. Isolate spill area, provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust. USE NON-SPARKING TOOLS.

Waste disposal method: Dispose of in accordance with state, local, and federal regulations.

Hazard Label Information: Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling. .

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: To maintain concentration at low exposure levels.

Mechanical (General): Not Recommended.

Work/Hygienic/Maintenance Practices:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established
