

Super Conductor Materials, Inc.

391 Spook Rock Industrial Park, Suffern, NY 10901 · 845.368.0240 · Fax 845.368.0250 · www.scm-inc.com

Chemtrec: (800) 424-9300
Poison Center: (800) 562-8236
Revision Date: January 8th, 2019

SAFETY DATA SHEET

Identity: Molybdenum

Formula: Mo

SECTION I - GENERAL INFORMATION

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM 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: 95.94

CAS #	OSHA PEL	ACGIH TLV	%
7439-98-7	10mg/m ³	10mg/m ³	0.0-100.0%

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: 4639.00°C

Melting Point: 2623.00°C

Evaporation Rate: N/A

Solubility in water: Insoluble

Vapor Pressure (vs. air or mmHg): 1 mm at 3102.0°C

Specific Gravity (H₂O=1): 10.22 gm/cc

Flash point: N/A

Vapor Density (vs. air=1): .6964

Appearance and odor: Grey-black powder or silver-white metal pieces, no odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Flammable solid *Explosive Limits:* LEL: N/A UEL: N/A

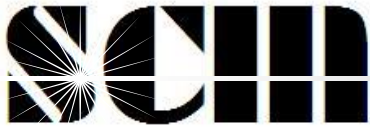
Extinguishing Media: Use suitable extinguishing agent for surrounding material and type of fire.

Special Fire Fighting Procedures:

Firefighters must wear full face, self-contaminated 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:

-Flammable in the form of dust or powder (below 9 microns), which may ignite during intensive mechanical treatment.



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- When heated to decomposition, molybdenum metal may emit toxic fumes of molybdenum.
- May have a violent reaction with oxidizing agents.
- Molybdenum oxidizes rapidly above 1000F in air at sea level.
- Dust-air mixtures may be explosive.
- Combines with oxygen on heating to give MoO₃.

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (stability): None

Incompatibility: Oxidizing agents, bromine trifluoride, chlorine trifluoride, fluorine, lead dioxide

Hazardous Decomposition or Byproducts: Molybdenum, molybdenum trioxide and other oxides of molybdenum.

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? Yes Other? No

Molybdenum compounds are poison by subcutaneous and intraperitoneal routes. Molybdenum and its compounds are highly toxic based upon animal experiments. Symptoms of acute poisoning include severe gastrointestinal irritation with diarrhea, coma and deaths from heart failure. Experimental animals exposed to high levels accumulated Mo in the lungs spleen, and heart, and showed a decrease of DNA and RNA in the liver, kidneys and spleen. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: May cause a red, dry throat and coughing.

Ingestion: Acute molybdenum poisoning may cause severe gastrointestinal irritation, diarrhea, coma, and death from cardiac failure. Chronic molybdenum poisoning as seen in animals may cause: loss of weight, anorexia, anemia, deficient lactation, male sterility, osteoporosis and bone-joint abnormalities.

Skin: May cause redness, itching and burning.

Eye: May cause redness, itching, burning and watering.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: May cause irritation to upper respiratory tract.

Chronic: May cause pneumoconiosis.

Ingestion:

Acute: May cause acute and/or chronic molybdenum poisoning.

Chronic: No chronic health effects recorded.

Skin:

Acute: Prolonged contact may cause irritation.

Chronic: No chronic health effects recorded.

Eye:

Acute: Prolonged contact may cause irritation.



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Chronic: No chronic health effects recorded.

Target Organ: May affect the lungs, bones, spleen, respiratory system, nervous system, liver, blood and heart.

Carcinogenicity: NTP? No

IARC Monographs? No

OSHA Regulated? No

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

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: 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 or below the PEL, TLV.

Mechanical (General): Good general ventilation is 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