



# Super Conductor Materials, Inc.

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

## SAFETY DATA SHEET

Identity: Molybdenum oxide  
Synonym: Molybdenum trioxide

Formula: MoO<sub>3</sub>/Mo<sub>2</sub>O<sub>3</sub>

### 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: 143.94

CAS #	OSHA PEL	ACGIH TLV	%
1313-27-5	5mg (Mo)/m <sup>3</sup>	5mg (Mo)/m <sup>3</sup>	0.0-100.0%

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: 1155.00°C

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

Melting Point: 795.00°C

Density: 4.692 gm/cc at 21.0°C

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Soluble

*Appearance and odor:* Pale yellow to white powder and pieces, no odor

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

*Method Used:* Unknown      *Explosive Limits:* LEL: N/A    UEL: N/A

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

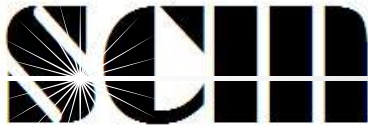
#### *Special Fire Fighting Procedures:*

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:*

When heated to decomposition, may emit toxic fumes of molybdenum.

Violent reaction with interhalogens.



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Explosive reaction on contact with molten magnesium.

## SECTION V - REACTIVITY DATA

*Stability:* Stable

*Conditions to Avoid (stability):* None

*Incompatibility:* Chlorine trifluoride, potassium, sodium, molten magnesium, aluminum, lithium, silicon.

*Hazardous Decomposition or Byproducts:* Molybdenum and molybdenum oxides.

*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. Workers exposed to Mo or MoO<sub>3</sub> over a period of 3-7 years have suffered from pneumoconiosis. Hexavalent molybdenum compounds are readily absorbed through the gastrointestinal tract. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

### Signs and Symptoms of Overexposure:

*Inhalation:* May cause a red, dry throat, sneezing, difficulty breathing 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, burning, and itching.

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

### Health Hazards (Acute and Chronic):

#### *Inhalation:*

Acute: May cause irritation to the upper respiratory system, pulmonary fibrosis and cough.

Chronic: May cause pneumoconiosis.

#### *Ingestion:*

Acute: May cause acute molybdenum poisoning.

Chronic: May cause chronic molybdenum poisoning.

#### *Skin:*

Acute: May cause severe irritation. Poison by subcutaneous and intraperitoneal routes.

Chronic: No chronic health effects recorded.

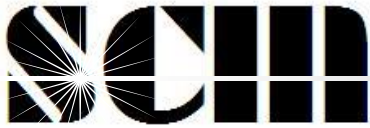
#### *Eye:*

Acute: May cause severe irritation.

Chronic: No chronic health effects recorded.

*Target Organ:* May affect the lungs, bones, spleen, and heart.

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



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*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:* 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.

### *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): 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