



Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810

Number:
Issue Date

MOLM-4278
04/13/11

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MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Description MOLYBDENUM-97 METAL (97Mo)

Cambridge Isotope Laboratories, Inc.
50 Frontage Rd
ANDOVER, MA 01810
USA

E-mail cilsales@isotope.com
Web Site www.isotope.com

Phone Numbers

Emergency Contact Chemtrec
Emergency Phone 1-800-424-9300 (24 hours)

Customer Service 1-800-322-1174 (8:30-5:30 EST)
Phone
Transportation 1-202-483-7616 (24 hours)

2 HAZARDS IDENTIFICATION

OSHA Hazards

No known OSHA hazards

HMIS Ratings

Physical 0
Flammability 0
Health 0

NFPA Codes

Fire 0
Health 0
Reactivity 0

Potential Health Effects

Eyes Contact may cause eye irritation.
Ingestion May be harmful if swallowed.
Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.



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3 COMPOSITION / INFORMATION ON INGREDIENTS

Composition / Information on Ingredients

Chemical Formula	Mo
Molecular Weight	96.90
CAS No.	7439-98-7 (unlabeled)
EC No.	231-107-2

4 FIRST AID MEASURES

First Aid Measures

Eyes	Flush eyes with water as a precaution.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Inhalation	If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
Skin	Wash with soap and plenty of water. Consult a physician.
Additional Information	Move out of dangerous area. Consult a physician and show this safety data sheet.

5 FIRE FIGHTING MEASURE

Fire Fighting Measures

Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
Fire Fighting Equipment	Wear self contained breathing apparatus for fire fighting if necessary.

6 ACCIDENTAL RELEASE MEASURES

Accidental Release Measures

Personal Precautions	Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
Environmental Precautions	In case of fire: Stop leak if safe to do so.



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Methods and materials for containment and cleanup Sweep up and shovel. Keep in suitable, closed containers for disposal.

7 HANDLING AND STORAGE

Precautions for Safe Handling

Handling Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for Safe Storage

Storage Store at room temperature away from light and moisture.

8 EXPOSURE CONTROL / PERSONAL PROTECTION

OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)

CHEMICAL NAME	TWA	OSHA PEL	ACGIH TLV
MOLYBDENUM-100 METAL			10 mg/M ³

Personal Protection

Eyes - Face Wear safety glasses with side shields (or goggles) and a face shield.

Skin Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory When appropriate, use NIOSH/CEN approved respirator.

Protective Clothing Wear suitable protective clothing and gloves.

Work Hygienic Practices Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties (Unlabeled Compound)

Form Foil

Color Grey, black, silver



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Odor	Odourless
pH	No data available
Melting Point	2,617 °C (4,743 °F) - lit
Boiling Point	4,612 °C (8,334 °F) - lit
Flashpoint	Not applicable
Flammability	The substance or mixture is a flammable solid with the subcategory 1.
Lower Explosion Limit	No data available
Upper Explosion Limit	No data available
Vapor Pressure	1 hPa (1 mmHg) at 3,102 °C (5,616 °F)
Solubility in Water	Insoluble
Auto Ignition Temperature	No data available

10 STABILITY AND REACTIVITY

Stability and Reactivity

Chemical Stability	Stable if stored under recommended conditions.
Conditions to Avoid	Heat, flames and sparks. Extremes of temperature and direct sunlight.
Hazardous decomposition products	Formed under fire conditions: Molybdenum oxides
Materials to avoid	Strong oxidizing agents, Bromine trifluoride, Chlorine trifluoride, Fluorine
Additional Information	Avoid: lead oxide

11 TOXICOLOGICAL INFORMATION

Acute Toxicity

Serious Damage/Eye Irritation	No data available
Skin Corrosion/Irritation	No data available
Inhalation	No data available
Respiratory or Skin Sensitization	Not available



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Germ Cell Mutagenicity	Genotoxicity in vivo - rat - Inhalation Cytogenetic analysis
IARC	No component of the product present at levels greater than or equal to 0.1 % is identifiable as probable, possible, or confirmed human carcinogen by IARC.
ACGIH	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
NTP	No component of this product present at levels greater than or equal to 0.1 % is identified as a known or anticipated carcinogen by NTP.
OSHA	No component of this product present at levels greater than or equal to 0.1 % is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive Toxicity	Reproductive toxicity - rat - Oral Maternal Effects: Other effects. Effects on Embryo or Fetus: Fetotoxicity. Specific Developmental Abnormalities: Musculoskeletal system.

Specific Target Organ Toxicity

Single Exposure	No data available
Repeated Exposure	No data available

Signs and Symptoms of Exposure

The chemical, physical, and toxicological properties have not been thoroughly investigated.

Other Information

RTECS	QA4680000
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12 ECOLOGICAL INFORMATION

Toxicity

Toxicity to Fish LC50	Oncorhynchus mykiss (rainbow trout) - 800 mg/l - 96 h
Persistence and Degradability	Not available
Bioaccumulative Potential	Not available
Mobility in Soil	Not available
PBT and vPvB Assessment	Not available
Other Adverse Effects	Not available



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13 DISPOSAL CONSIDERATIONS

Disposal Considerations

Product Disposal Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.

14 TRANSPORT INFORMATION

Transportation Information-DOT/IATA/IMDG

Special Shipping Not dangerous goods.
Notes

15 REGULATORY INFORMATION

Regulatory Information

No known OSHA hazards

SARA

Sara 302 No chemicals in this material are subject to the reporting requirements.

Component

Sara 313 No chemicals in this material are subject to the reporting requirements.

Component

STATE REGULATIONS

Massachusetts No
Right to Know

Pennsylvania Right Yes
to Know

New Jersey Right Yes
to Know

California This product does not contain any chemicals known to State of California to cause cancer, birth
Proposition 65 defects, or any other reproductive harm.

Canada

DSL Status All components are on the Canadian DSL list.

EU

Hazard Flammable



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Safety Statements

- Keep container in a well-ventilated place.
- Keep away from sources of ignition - No smoking.
- Wear suitable protective clothing, gloves and eye/face protection.

Risk Statements

- Highly flammable.

16 OTHER INFORMATION

Additional MSDS Information This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Approved On 04/13/11
Version Number 1