

## 1 Identification

### Product identifier

**Product name:** Lead molybdenum oxide

**Stock number:** A10576

**CAS Number:**

10190-55-3

**EC number:**

233-459-2

**Index number:**

082-001-00-6

**Relevant identified uses of the substance or mixture and uses advised against.**

**Identified use:** SU24 Scientific research and development

### Details of the supplier of the safety data sheet

#### Manufacturer/Supplier:

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

### Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS08 Health hazard

Repr. 1A H360 May damage fertility or the unborn child.

STOT RE 2 H373 May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS07 GHS08

### Signal word

Danger

### Hazard statements

H302+H332 Harmful if swallowed or if inhaled.

H360 May damage fertility or the unborn child.

H373 May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

### Precautionary statements

P273 Avoid release to the environment.

P201 Obtain special instructions before use.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

D2A - Very toxic material causing other toxic effects



### Classification system

#### HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 1 Health (acute effects) = 1

FIRE 0 Flammability = 0

REACTIVITY 0 Physical Hazard = 0

### Other hazards

#### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

## 3 Composition/information on ingredients

### Chemical characterization: Substances

#### CAS# Description:

10190-55-3 Lead molybdenum oxide

#### Identification number(s):

EC number: 233-459-2

Index number: 082-001-00-6

Product name: **Lead molybdenum oxide**

(Contd. of page 1)

4 First-aid measures

**Description of first aid measures**  
**After inhalation**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.  
**After skin contact**  
Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.  
**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.  
**After swallowing** Seek medical treatment.  
**Information for doctor**  
**Most important symptoms and effects, both acute and delayed** No further relevant information available.  
**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

**Extinguishing media**  
**Suitable extinguishing agents** Product is not flammable. Use fire-fighting measures that suit the surrounding fire.  
**Special hazards arising from the substance or mixture**  
If this product is involved in a fire, the following can be released:  
Lead oxide fume  
Metal oxide fume  
**Advice for firefighters**  
**Protective equipment:**  
Wear self-contained respirator.  
Wear fully protective impervious suit.

6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
**Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.  
**Methods and material for containment and cleaning up:**  
Dispose of contaminated material as waste according to section 13.  
Ensure adequate ventilation.  
**Prevention of secondary hazards:** No special measures required.  
**Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

7 Handling and storage

**Handling**  
**Precautions for safe handling**  
Keep container tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation at the workplace.  
Open and handle container with care.  
**Information about protection against explosions and fires:** The product is not flammable  
**Conditions for safe storage, including any incompatibilities**  
**Storage**  
**Requirements to be met by storerooms and receptacles:** No special requirements.  
**Information about storage in one common storage facility:** No information known.  
**Further information about storage conditions:**  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
**Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

**Additional information about design of technical systems:**  
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**  
**Components with limit values that require monitoring at the workplace:**

Molybdenum and compounds (as Mo)	
mg/m3	
ACGIH TLV	10(Mo)
Austria MAK	15(Mo)
Denmark TWA	10(Mo)
Finland TWA	5(Mo)
Germany MAK	15(Mo)
Korea TLV	10(Mo)
Poland TWA	4(Mo); 10(Mo)-STEL
Sweden NGV	10(Mo)(total dust); 5(Mo)(resp. dust)
Switzerland MAK-W	10(Mo)
United Kingdom TWA	10(Mo); 20(Mo)-STEL
OSHA PEL	15(Mo)(total dust)
Lead, elemental, and inorganic compounds (as Pb)	
mg(Pb)/m3	
ACGIH TLV	0.05 Confirmed animal carcinogen
Austria MAK	0.1
Belgium TWA	0.15
Denmark TWA	0.1
Germany MAK	0.1
Japan OEL	0.1
Netherlands TWA	0.15
Norway TWA	0.05
Poland TWA	0.05
Switzerland MAK-W	0.1
United Kingdom TWA	0.1
Finland TWA	0.1

(Contd. on page 3)  
USA

<b>Product name: Lead molybdenum oxide</b>	
<div>France TWA 0.15 Hungary STEL 0.04 Sweden TWA 0.1 (total dust) 0.05 (resp. dust) USA PEL 0.05 <b>Additional information:</b> No data</div>	(Contd. of page 2)
<b>Exposure controls</b> <b>Personal protective equipment</b> <b>General protective and hygienic measures</b> The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Store protective clothing separately. Maintain an ergonomically appropriate working environment. <b>Breathing equipment:</b> Use suitable respirator when high concentrations are present. Refer to 29CFR1910.1025 for regulations on respiratory protection required during exposure to lead and lead compounds. <b>Protection of hands:</b> Impervious gloves Check protective gloves prior to each use for their proper condition. The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. <b>Eye protection:</b> Safety glasses <b>Body protection:</b> Protective work clothing.	

<b>9 Physical and chemical properties</b>	
<b>Information on basic physical and chemical properties</b> <b>General Information</b> <b>Appearance:</b> <div>Form: Powder Color: White Odor: Odorless Odor threshold: Not determined.</div>	
<b>pH-value:</b>	Not applicable.
<b>Change in condition</b> <div>Melting point/Melting range: Not determined Boiling point/Boiling range: Not determined Sublimation temperature / start: Not determined</div>	
<div>Flash point: Not applicable Flammability (solid, gaseous): Not determined. Ignition temperature: Not determined Decomposition temperature: Not determined Auto igniting: Not determined.</div>	
<div><b>Danger of explosion:</b> Product does not present an explosion hazard. <b>Explosion limits:</b> Lower: Not determined Upper: Not determined Vapor pressure: Not applicable. Density at 20 °C (68 °F): 6.7 g/cm³ (55.912 lbs/gal) Relative density: Not determined. Vapor density: Not applicable. Evaporation rate: Not applicable. <b>Solubility in / Miscibility with</b> Water: Insoluble <b>Partition coefficient (n-octanol/water):</b> Not determined. <b>Viscosity:</b> dynamic: Not applicable. kinematic: Not applicable. <b>Other information</b> No further relevant information available.</div>	


<b>10 Stability and reactivity</b>	
<b>Reactivity</b> No information known. <b>Chemical stability</b> Stable under recommended storage conditions. <b>Thermal decomposition / conditions to be avoided:</b> Decomposition will not occur if used and stored according to specifications. <b>Possibility of hazardous reactions</b> No dangerous reactions known <b>Conditions to avoid</b> No further relevant information available. <b>Incompatible materials:</b> No information known. <b>Hazardous decomposition products:</b> Lead oxide fume Metal oxide fume	

<b>11 Toxicological information</b>	
<b>Information on toxicological effects</b> <b>Acute toxicity:</b> Harmful if inhaled. Harmful if swallowed. <b>LD/LC50 values that are relevant for classification:</b> No data <b>Skin irritation or corrosion:</b> May cause irritation <b>Eye irritation or corrosion:</b> May cause irritation <b>Sensitization:</b> No sensitizing effects known. <b>Germ cell mutagenicity:</b> No effects known. <b>Carcinogenicity:</b> EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies. IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals. ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. <b>Reproductive toxicity:</b> May damage fertility or the unborn child.	
(Contd. on page 4)	

Product name: <b>Lead molybdenum oxide</b>	
(Contd. of page 3)	
<b>Specific target organ system toxicity - repeated exposure:</b> May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative. <b>Specific target organ system toxicity - single exposure:</b> No effects known. <b>Aspiration hazard:</b> No effects known. <b>Subacute to chronic toxicity:</b> Acute molybdenum poisoning may cause severe gastrointestinal irritation, diarrhea, coma and death from cardiac failure. Chronic molybdenum poisoning in laboratory animals has caused loss of weight, anorexia, anemia, deficient lactation, male sterility, osteoporosis and bone joint abnormalities. Lead and lead compounds may cause abdominal pain, diarrhea, loss of appetite, metallic taste, nausea, vomiting, lassitude, insomnia, muscle weakness, joint and muscle pain, irritability, headache and dizziness. Red blood cells may be damaged resulting in anemia. Gastritis and injury to the kidneys, liver, male gonads, and central nervous system may also occur. <b>Subacute to chronic toxicity:</b> No effects known. <b>Additional toxicological information:</b> To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.	

<b>12 Ecological information</b>	
<b>Toxicity</b> <b>Aquatic toxicity:</b> No further relevant information available. <b>Persistence and degradability</b> No further relevant information available. <b>Bioaccumulative potential</b> No further relevant information available. <b>Mobility in soil</b> No further relevant information available. <b>Ecotoxicological effects:</b> <b>Remark:</b> Very toxic for aquatic organisms <b>Additional ecological information:</b> <b>General notes:</b> Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach ground water, water course or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms <b>Results of PBT and vPvB assessment</b> <b>PBT:</b> Not applicable. <b>vPvB:</b> Not applicable. <b>Other adverse effects</b> No further relevant information available.	

<b>13 Disposal considerations</b>	
<b>Waste treatment methods</b> <b>Recommendation</b> Consult state, local or national regulations to ensure proper disposal. <b>Uncleaned packagings:</b> <b>Recommendation:</b> Disposal must be made according to official regulations.	

<b>14 Transport information</b>	
<b>UN-Number</b> <b>DOT, IMDG, IATA</b>	UN3077
<b>UN proper shipping name</b> <b>DOT</b> <b>IMDG</b> <b>IATA</b>	Environmentally hazardous substances, solid, n.o.s. (Lead molybdenum oxide) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead molybdenum oxide), MARINE POLLUTANT ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead molybdenum oxide)
<b>Transport hazard class(es)</b> <b>DOT, IMDG, IATA</b>  <b>Class</b> <b>Label</b> <b>Class</b> <b>Label</b>	9 Miscellaneous dangerous substances and articles. 9 9 (M7) Miscellaneous dangerous substances and articles 9
<b>Packing group</b> <b>DOT, IMDG, IATA</b>	III
<b>Environmental hazards:</b> <b>Marine pollutant (IMDG):</b> <b>Special marking (ADR):</b> <b>Special marking (IATA):</b>	Symbol (fish and tree) Symbol (fish and tree) Symbol (fish and tree)
<b>Special precautions for user</b> <b>EMS Number:</b>	Warning: Miscellaneous dangerous substances and articles F-A,S-F
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> Not applicable.	
<b>Transport/Additional information:</b> <b>DOT</b> <b>Marine Pollutant (DOT):</b> <b>Remarks:</b>	No Special marking with the symbol (fish and tree).
<b>UN "Model Regulation":</b>	UN3077, Environmentally hazardous substances, solid, n.o.s. (Lead molybdenum oxide), 9, III

<b>15 Regulatory information</b>	
<b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b> <b>GHS label elements</b> The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)	
(Contd. on page 5) USA	

**Product name:** **Lead molybdenum oxide**

**Hazard pictograms**



GHS07 GHS08

**Signal word** *Danger*

**Hazard statements**

H302+H332 Harmful if swallowed or if inhaled.

H360 May damage fertility or the unborn child.

H373 May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

**Precautionary statements**

P273 Avoid release to the environment.

P201 Obtain special instructions before use.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

This product contains a chemical known to the state of California to cause cancer and/or reproductive toxicity.

**SARA Section 313 (specific toxic chemical listings)**

10190-55-3 Lead molybdenum oxide

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer**

10190-55-3 Lead molybdenum oxide

**Prop 65 - Developmental toxicity** Substance is not listed.

**Prop 65 - Developmental toxicity, female** Substance is not listed.

**Prop 65 - Developmental toxicity, male** Substance is not listed.

**Information about limitation of use:**

For use only by technically qualified individuals.

This substance is subject to a Significant New Use Rule (SNUR) promulgated under Section 5(a)(2) of the Toxic Substances Control Act (TSCA). See 40 CFR 721.

This product is being sold for research and development use.

This product contains lead and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**Other regulations, limitations and prohibitive regulations** Refer to 29CFR1910.1025 for regulations concerning lead and lead compounds.

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

Substance is not listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Date of preparation / last revision** 11/24/2015 / -

**Abbreviations and acronyms:**

RID: Règlement International concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)