

Material Safety Data Sheet

Molybdenum(VI) oxide

ACC# 01023

Section 1 - Chemical Product and Company Identification

MSDS Name: Molybdenum(VI) oxide

Catalog Numbers: AC206360000, AC206360050, AC206361000, AC206365000, A174-500

Synonyms: Molybdic oxide; Molybdenum trioxide; Molybdic acid anhydride; Molybdic anhydride; Molybdenum oxide (MoO₃).

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
1313-27-5	Molybdenum trioxide	>99	215-204-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow to green powder.

Warning! Danger of serious damage to health by prolonged exposure through inhalation and if swallowed. Causes eye and respiratory tract irritation.

Target Organs: Lungs, respiratory system, eyes.

Potential Health Effects

Eye: Causes eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause irritation of the digestive tract. Ingestion of large amounts of molybdenum may cause appetite loss, fatigue, and diarrhea.

Inhalation: Causes respiratory tract irritation.

Chronic: Aerosols of water-soluble molybdenum compounds can affect the respiratory tract if inhaled. Animal data from chronic inhalation studies have shown inflammatory changes in the lungs of rats, with cellular aggregates resembling nodules, which are consistent with some of the earlier clinical reports of lung problems among exposed workers. Data from a NTP study indicate that molybdenum trioxide, a soluble compound, is a likely animal carcinogen. Data from the NTP study showed that molybdenum trioxide, a water-soluble compound, is associated with an increased risk of lung tumors in mice and possibly

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel.

Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Substance is noncombustible.

Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

Flash Point: Not applicable.

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Do not breathe dust.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an

eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Molybdenum trioxide	0.5 mg/m ³ TWA (respirable fraction, as Mo) (listed under Molybdenum soluble compounds).	1000 mg/m ³ IDLH (as Mo) (listed under Molybdenum soluble compounds).	5 mg/m ³ TWA (as Mo) (listed under Molybdenum soluble compounds).

OSHA Vacated PELs: Molybdenum trioxide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Powder

Appearance: yellow to green

Odor: odorless

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 1155 deg C @ 760 mmHg

Freezing/Melting Point: 795 deg C

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: 4.6900 g/cm³

Molecular Formula: MoO₃

Molecular Weight: 143.94

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation.

Incompatibilities with Other Materials: Bromine pentafluoride, chlorine trifluoride, lithium, magnesium, potassium, sodium, acids.

Hazardous Decomposition Products: Oxides of molybdenum.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 1313-27-5: QA4725000

LD50/LC50:

CAS# 1313-27-5:

Inhalation, rat: LC50 = >5840 mg/m³/4H;

Oral, rat: LD50 = 2689 mg/kg;

Skin, rat: LD50 = >2 gm/kg;

Carcinogenicity:

CAS# 1313-27-5:

- | ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans (listed as 'Molybdenum soluble compounds').
- | California: Not listed.
- | NTP: Not listed.
- | IARC: Not listed.

Epidemiology: No information found

Teratogenicity: No information available.

Reproductive Effects: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not Regulated	Not Regulated
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 1313-27-5 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 1313-27-5: immediate, delayed.

Section 313

This material contains Molybdenum trioxide (CAS# 1313-27-5, >99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 1313-27-5 can be found on the following state right to know lists: California, (listed as Molybdenum compounds, n.o.s.), New Jersey, Pennsylvania, Minnesota, (listed as Molybdenum soluble compounds), Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 36/37 Irritating to eyes and respiratory system.

R 48/20/22 Harmful : danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Safety Phrases:

S 22 Do not breathe dust.

S 25 Avoid contact with eyes.

WGK (Water Danger/Protection)

CAS# 1313-27-5: 1

Canada - DSL/NDSL

CAS# 1313-27-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 1313-27-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 4/05/1997

Revision #5 Date: 9/26/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.