

# CATALYTIC INNOVATIONS



## SAFETY DATA SHEET

### 1. PRODUCT IDENTIFICATION

**Product Name:** *Molybdenum Trioxide (65% Mo)*

**CAS #:** 1313-27-5

**Trade Names/Synonyms:**

**EPA Reg. No.:** Not applicable

**Use of substance/mixture:** For laboratory and manufacturing use only.

**Restricted Use:** Not for food, drug, or household use.

**Manufacturer:** Catalytic Innovations, LLC  
10027 County Road 2020  
Rolla, MO 65401

**Emergency Contact Number:** 573-578- 1368

**SDS CREATION DATE:** April 11<sup>th</sup>, 2023

**SDS REVISION DATE:** N/A

### 2. HAZARD IDENTIFICATION

**GHS CLASSIFICATIONS:** Acute Toxicity, Inhalation: (Category 4); Acute Toxicity, Oral: (Category 4); Respiratory Irritation: (Category 3); Eye Irritation: (Category 2A); Carcinogenicity: (Category 2).

**SIGNAL WORD:** Warning!

**HAZARD STATEMENTS:**

H333: Harmful if inhaled  
H303: Harmful if swallowed  
H305: Harmful if swallowed and enters airways  
H319: Causes serious eye irritation  
H335: May cause respiratory irritation  
H336: May cause drowsiness or dizziness  
H351: Suspected of causing cancer

**PRECAUTIONARY STATEMENTS:**

**Prevention Measures:**

P261: Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264: Wash contact area thoroughly after handling.  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P281: Use personal protective equipment as required.

**Response Measures:**

P305 + P351 + P338: IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P301 + P330 + P331 +P311: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON Center or doctor/ physician.  
P304 + P340: IF INHALED: Remove person to fresh air and keep in position comfortable for breathing.  
P337 + P313: If eye irritation persists: Get medical advice/attention.



P312: Call a POISON CENTER or doctor/physician if you feel unwell.  
P403 + P235: Store in a well-ventilated place. Keep cool.  
P501: Dispose of contents/container in accordance with local/state/federal regulations.

**HEALTH COMMENTS:** Read all precautions of products being handled and follow the most restrictive language for all products to provide the safest work environment.

**COMMENTS: KEEP OUT OF REACH OF CHILDREN**

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### 3. COMPOSITION

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<u>Chemical Ingredients:</u>	<u>Percentage by Weight</u>	<u>CAS No.</u>	<u>GHS-US</u>
Molybdenum Trioxide	>95%	1313-27-5	See section 2

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### 4. FIRST AID MEASURES

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**EYES:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first minutes then continue rinsing eyes. Call a poison control center or doctor for treatment advice if pain, blinking, or redness persists.

**SKIN:** Take off contaminated clothing. Rinse skin immediately with plenty of water and mild soap for 15-20 minutes followed by a rinse with warm water. Call a poison control center or doctor for treatment advice.

**INGESTION:** Immediately call a poison control center or doctor. Rinse the mouth. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**INHALATION:** Move person to fresh air. Allow the victim to rest. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

**NOTES TO PHYSICIAN:** All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

**Acute Symptoms:** May cause irritation of the eyes and or respiratory system like the nose, throat, and lungs.

**Chronic Symptoms:** No information available.

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### 5. FIRE FIGHTING MEASURES

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**Flash Point (°F/Test Method):** Data unavailable.

**Flammable Limits (LFL & UFL):** Non-flammable.

**Extinguishing Media:** Use appropriate firefighting agent for the fire.

**Specific Hazards Arising from Chemical:** Above ca. 700°C sublimation starts to take place and fumes of MoO<sub>3</sub> can become airborne, which should not be inhaled and which can contaminate the surroundings. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Evacuate all personnel.

**Hazardous Combustion Products:** Metal oxides.

**Precautionary Measures for Fire-Fighters:** Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Do not enter fire area without proper protective equipment, including respiratory protection (self-contained breathing apparatus).

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## 6. ACCIDENTAL RELEASE MEASURES

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**Steps to be taken in case material is released or spilled:** Avoid formation and inhalation of dust. Use an appropriate industrial vacuum cleaner equipped with ULPA or HEPA filters. Collect spilled material in suitable containers or bags for recovery or disposal. In the case of disposal, spilled material or contaminated material should be disposed of as waste as described in Section 13.

**Environmental Caution:** Keep spills and cleaning runoff out of municipal sewers and open bodies of water. Notify the authorities if any of the substance enters the sewers or public waters.

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## 7. HANDLING/STORAGE INFORMATION

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**Precautions for Safe Handling:** Use only outdoors or in a well-ventilated area to avoid formation of vapor. Avoid eye and skin contact and do not breathe in vapor, mist, or dust.

**Precautions for Storage:** Keep container closed when in use. Do not store the product with highly reactive substances and strong reducing agents.

**Other Comments:** No information available.

Observe all federal, state and local regulations when storing this product. It is recommended that storage and transfers of this product be done on an impervious surface to prevent contamination of waterways.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Exposure Parameters:

Component: Molybdenum Trioxide		
Agency	Parameters	Values
OSHA	PEL	15 mg/m <sup>3</sup> (total dust)
ACGIH	TWA	3 mg/m <sup>3</sup> (respirable fraction)
ACGIH	TWA	10 mg/m <sup>3</sup> (inhalable fraction)

**Engineering Controls:** Emergency eye wash fountains and showers should be made available in the immediate vicinity of the chemical or where exposure can occur. If possible, avoid generating dust, fumes, gas, or vapor. Ensure adequate ventilation. If engineering measures are not sufficient to maintain concentration of dust particles below the OEL, approved respiratory protection must be worn.

**Hygiene Measures:** Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, or when leaving work. Keep away from food and drink.

**Respiratory Protection:** If exposure limits are exceeded or irritation is experienced, wear approved respiratory protection.

**Skin/Body Protection:** Wear chemically protective gloves. Wear chemically protective boots, aprons, and gauntlets to prevent prolonged or repeated contact with skin.

**Eye/Face Protection:** Wear safety goggles when handling this product. Use a face shield for additional protection. Contact lenses are not eye protective devices.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Physical State:** Solid

**Appearance:** Powder/White to Yellow

**Odor:** Odorless

**pH:** No data available.

**Evaporation Rate:** Negligible  
**Melting Point:** 795 0C  
**Freezing Point:** No data available.  
**Boiling Point:** 1155 0C  
**Flash Point:** No data available.  
**Flammability:** No data available.  
**Relative Density:** 4.69 (at 26 0C).  
**Water Solubility:** 1.07 g/l (at 18 0C).  
**Specific Gravity (water = 1.0):** 14.69 at 26 0C  
**Percent Volatile (by volume):** No data available.  
**Vapor Pressure:** No data available.  
**Vapor Density:** No data available.  
**Viscosity, Kinematic:** Not applicable.  
**Partition Coefficient: N-Octanol/Water:** Not applicable.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No information available.

**Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Avoid generating dust in the air.

**Incompatible Materials:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Under normal conditions for use and storage, no hazardous decomposition products should be produced.

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## 11. TOXICOLOGICAL INFORMATION

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**Likely Routes of Exposure:** Inhalation, ingestion, or skin/eye contact.

**Acute Toxicity Effects:**

Component: Molybdenum Trioxide	
Test	Results
LD50 Oral Rat	2689 mg/kg
LC50 Inhalation Rat	5840 mg/m <sup>3</sup> (4 hrs)
LD50 Dermal Rat	2 g/kg

**Sensitization:** Not expected to cause skin sensitization.

**Eye Irritation:** Causes serious eye irritation.

**Skin Irritation:** May cause temporary irritation through prolonged contact.

**Respiratory Irritation:** No information available.

**Reproductive Toxicity:** No information available.

**Developmental Toxicity:** No information available.

**STOT Single Exposure:** May cause respiratory irritation.

**STOT Repeated Exposure:** May cause damage to organs through prolonged or repeated exposure.

**Carcinogenicity:** See table below.

Component	CAS No.	IARC	NTP	ACGIH	OSHA
Molybdenum Trioxide	1313-27-5	Group 2B	Not Listed	Not listed	X

**Chronic Effects/Symptoms:** Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

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## 12. ECOLOGICAL INFORMATION

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### Acute Aquatic Toxicity Effects:

Component: Molybdenum Trioxide	
Test	Results
LC50 Fish 1	70 mg/l (96 hrs) (Fathead Minnow)

**Persistence and Degradability:** No information available.

**Bioaccumulative Potential:** No information available.

**Mobility:** Likely to be mobile in the environment due to its water solubility.

Do not contaminate water supplies. Avoid release to the environment.

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## 13. DISPOSAL CONSIDERATIONS

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Evaluation is required by the user at the time of disposal. In all cases, disposal should be in accordance with all local, state, and federal laws and regulations. For recycling options please contact product manufacturer.

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## 14. TRANSPORTATION INFORMATION

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DOT: Not Regulated under 49 CFR 172.101

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## 15. REGULATORY INFORMATION

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### US FEDERAL REGULATIONS AND INVENTORY

Component: Molybdenum Trioxide	
Regulation	Status
SARA Section 311/312 Hazard Classes	Immediate (Acute) health hazard Delayed (Chronic) health hazard
SARA 313 (TRI Reporting)	YES
TSCA	YES

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## 16. OTHER INFORMATION

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Prepared by: ESH Department  
 SDS Preparation Date: April 11<sup>th</sup>, 2023  
 Last Revision Date: N/A

## NFPA CODES



### FOR ADDITIONAL NON-EMERGENCY INFORMATION CONTACT:

Catalytic Innovations, LLC  
10027 County Road 2020  
Rolla, MO 65401  
573-578-1368

Note: This SDS was prepared for and shall only be used for this product. The information and recommendations on this SDS are presented in good faith and based on data which is believed to be accurate. Catalytic Innovations, however, makes no guarantees or warranty, either expressed or implied, on the accuracy of this information. The conditions or methods of handling, storage, use, and disposal of this is beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, disposal of this product. If this product is used as a component of another product, the information contained in this SDS may no longer be applicable.

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. This information relates to the specific product designated and may not be valid for such product used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness by Catalytic Innovations, LLC. It is the user's responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement. Catalytic Innovations, LLC reserves the right to refuse shipment of this product to any consumer who fails to demonstrate the ability to consistently handle and use it safely and in compliance with all applicable laws, rules and regulations. Such demonstration may require on-site inspection of any or all storage, processing, packaging and other handling systems that come in contact with it. Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.

### **Legend:**

**ACGIH** (American Conference of Governmental Industrial Hygienists)

**OSHA** (Occupational Safety and Health Agency)

**NIOSH** (National Institute for Occupational Safety and Health)

**IARC** (International Agency for Research on Cancer)

**TSCA** (Toxic Substance Control Act)

**SARA** (Superfund Amendments and Reauthorization Act)

**CFR** (Code of Federal Regulations)

**DOT** (Department of Transportation)

**CAS** (Chemical Abstracts Service)

**CWA** (Clean Water Act)

**CAA** (Clean Air Act)