

**\*\*\*Section 1 – Identification\*\*\*****Product Identifier:** Molybdic Oxide (Technical Grade MoO<sub>3</sub>)**Synonyms:** Roasted Molybdenum Concentrate; Moly Oxide; Molybdenum Trioxide**Chemical Family:** Ferro alloy**Recommended Use:** Steel making additive.**Restriction on Use:** None known**Manufacturer Information**

The David J. Joseph Company  
300 Pike Street  
Cincinnati, OH 45202

Non-Emergency Contact: Safety Department  
Non-Emergency Phone: 513-419-6200  
Emergency Contact: DJJ  
Emergency Phone: 513-562-1699

**\*\*\*Section 2 – Hazard(s) Identification****Health Hazards**

Acute Toxicity, Oral (Category 4)  
Serious eye damage / eye irritation (Category 2A)  
Carcinogenic (Category 2)  
Specific target organ toxicity, single exposure (Category 3 respiratory tract irritation)  
Specific target organ toxicity, repeated exposure (category 2)

**Environmental Hazards**

Hazardous to aquatic environment, acute hazard (Category 3)  
Hazardous to aquatic environmental, long-term hazard (Category 3)

**OSHA Define Hazard** Not classified.**GHS Label Elements****Symbol(s)****Signal Word**

Warning

**Hazards Statement(s)**

Harmful if swallowed. Causes serious eye irritation.  
May cause respiratory irritation. Suspected of causing cancer.  
May cause damage to organs through prolonged or repeated exposure.  
Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

**Precautionary Statements****Prevention**

Do not handle until all safety precautions have been read and understood.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well ventilated area. Avoid release to the environment.



Wear protective gloves / protective clothing / eye protection / face protection.  
Avoid breathing dust. Wash thoroughly after handling.

### Response

If swallowed: Rinse mouth. Call a Poison Center or doctor / physician if you feel unwell.  
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice / attention.

### Storage

Store in a well ventilated place. Keep container tightly closed. Store locked up.

### Disposal

Disposal of contents / container to an appropriate treat and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**\*\*\*Section 3 – Composition / Information on Ingredients\*\*\***

CAS	Component	Percent
1313-27-5	Molybdenum Oxide	85-98
14808-60-7	Silica	2-15

**\*\*\*Section 4 – First Aid Measures\*\*\***

### Inhalation

If dust is inhaled, remove patient from exposure and bring to fresh air. If breathing has stopped, perform artificial respiration and seek medical attention immediately.

### Skin Contact

Remove contaminated clothing and shoes. Wash skin with soap and water, rinse thoroughly until no evidence of chemical remains (15-20 minutes recommended). Seek medical attention if irritation develops and persists.

### Eye Contact

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower eyelids until no evidence of chemical remains (15-20 minutes recommended). Remove contacts, if present and easy to do, and keep flushing eyes. Seek medical attention.

### Ingestion

Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. If swallowed: Immediately call a POISON CENTER or doctor/physician. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Never give anything by mouth to a victim



who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center.

**\*\*\*Section 5 – Fire Fighting Measures\*\*\***

**Extinguishing Media**

Use standard extinguishing media such as water, sand, foam, CO<sub>2</sub>, Dry chemical powder. Use fire-fighting measures that suit the location/surroundings.

**Unsuitable Extinguishing Media**

None.

**Specific Hazards Arising from the Chemical**

None known.

**Special Protective Equipment and Precautions for Firefighters**

Wear self-contained breathing apparatus and fully protective suit and gloves. Dispose of fire debris and contaminated fire-fighting media in accordance with local regulations. If using water, contain the run-off if possible.

**\*\*\*Section 6 – Accidental Release Measures\*\*\***

**Personal Precautions, Protective Equipment and Emergency Procedures**

Avoid formation and inhalation of dust. Seek to ensure ventilation that maintains airborne concentrations below Occupational Exposure Limits. Keep unprotected persons away. Do not breathe dust. Avoid contact with skin, eyes, and clothing – wear suitable protective equipment.

**Methods and Materials for Containment and Cleaning Up**

Use an appropriate industrial vacuum cleaner, equipped with ULPS or HEPA filters. Collect spilled material in suitable containers or bags for recovery or disposal. In the case of disposal, spilled material should be used as a product or disposed of as a waste as described in section 13.

**\*\*\*Section 7 – Handling and Storage\*\*\***

**Precautions for Safe Handling**

The use of gloves and other protective clothing and equipment to avoid skin contact is suggested for all workplaces. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Do not taste or swallow. Do not eat, drink or smoke when handling. Wear appropriate personal protective clothing.

**Conditions for Safe Storage**

Store in well ventilated, dry area. Store away from incompatible materials.

**Incompatibilities**

Strong oxidizers

**\*\*\*Section 8 – Exposure Controls / Personal Protection\*\*\***

**Exposure Limits**



Substance	Type of Limit	Value	Form
Molybdenum Trioxide	OSHA PEL	15 mg/m3	Total Dust
Molybdenum Trioxide	ACGIH TWA	3 mg/m3	Respirable Fraction
Molybdenum Trioxide	ACGIH TWA	10 mg/m3	Inhalable Fraction
Silica	OSHA PEL	10 mg/m3/%SiO <sub>2</sub> +2	Respirable Fraction
Silica	OSHA PEL	30 mg/m3/% SiO <sub>2</sub> +2	Inhalable Fraction

**Appropriate Engineering controls**

Use process enclosures, local exhaust ventilation or other engineering controls to control airborne levels below recommended exposure limits. Ventilation should be sufficient to prevent build-up of dust or fume. Good general ventilation is typically 10 air changes per hour.

**Individual Protection Measures**

Use protective equipment as needed.

**Eyes/Face Protection**

Wear splash-proof or dust resistant safety goggles where there is danger of eye contact.

**Skin Protection**

Wear appropriate gloves and protective clothing to prevent repeated or prolonged contact with skin.

**General Information**

Prevent releases and contain spills.

<b>***Section 9 – Physical and Chemical Properties***</b>
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**Appearance:** Solid (powder) Yellow to Gray.

**Physical state:** Solid

**Melting/freezing Point:** 1463 F (795 ° C)

**Flash Point:** N/A

**UFL:** Not Explosive

**Vapor Pressure:** N/A

**Specific Gravity:** 4.7

**Auto Ignition:** N/A

**pH:** N/A

**Boiling Point:** 1155 ° C @ 760 mmHg

**OSHA Flammability Class:** No Information

**LFL:** Not Explosive

**Vapor Density:** N/A

**Solubility (H20):** Soluble 1.06g/l at 18 ° C

<b>***Section 10 – Chemical Stability &amp; Reactivity***</b>
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**Reactivity**

Stable under normal temperatures and pressures.

**Chemical Stability**

Stable at normal conditions.

**Possibility of Hazardous Reaction**

Hazardous polymerization has not been reported.

**Conditions to Avoid**

Prevent dispersion of dust in air.

**Incompatible Materials**

Strong Oxidizing Agents

**Hazardous Decomposition Products**

None known.



**\*\*\*Section 11 – Toxicological Information\*\*\***

**General Toxicological Information**

May cause damage to organs through prolonged or repeated exposure by inhalation. Inhalation of dusts may cause respiratory irritation. Prolonged inhalation may be harmful. Dust in the eyes will causes serious eye irritation. Harmful if swallowed.

<b>Likely routes of Exposure</b>	<p><b>Oral Absorption</b> Rapid and almost complete absorption through GI tract.</p> <p><b>Inhalation Absorption</b> Well absorbed based on animal data. Absorption in humans dependent on particle size, deposition and clearance.</p> <p><b>Dermal Absorption</b> Low to negligible.</p> <p><b>Metabolism</b> No metabolism. Molybdenum compounds transform quickly to molybdate ions (MoO<sub>4</sub>)<sup>2-</sup> upon dissolution.</p> <p><b>Excretion</b> Rapidly eliminated from plasma predominantly via renal excretion (&gt;80%) and feces (&lt;10%).</p>
<b>Acute Toxicity</b>	Acute oral toxicity of molybdenum trioxide: LD50, Oral Rat > 2689 mg/kg bw Acute inhalation: LD 50 Rat >5840 mg/m <sup>3</sup> . Chronic oral toxicity: LD 50 Rat 125mg/kg (long term feed study).
<b>Skin Corrosion/ Irritation</b>	Prolong skin exposure may cause temporary irritation.
<b>Serious Eye Damage/ Irritation</b>	Causes serious eye irritation.
<b>Respiratory or Skin Sensitization</b>	Molybdenum metal is not sensitizing to the skin. There is no data indicating respiratory sensitization.
<b>Germ-Cell Mutagenicity</b>	Not a germ cell mutagen. Negative test results in three tests with sodium molybdate for: bacterial reverse mutation assay, in vitro gene mutation assay in mouse lymphoma cells. Conservative read-across to the poorly soluble molybdenum metal.
<b>Carcinogenicity</b>	Suspected carcinogen.
<b>Reproductive Toxicity</b>	There are currently no reliable scientific data available indicating adverse effects on reproduction or fertility.
<b>STOT-Single Exposure</b>	May cause respiratory irritation.
<b>STOT-Repeated Exposure</b>	May cause damage to organs through prolonged or repeated exposure.
<b>Aspiration Hazard</b>	N/A

**\*\*\*Section 12 – Ecological Information\*\*\***

**Component Analysis – Ecotoxicity – Aquatic Toxicity**

Fish LC50 Fathead minnow (Pimephales promelas) 70 mg/l, 96 hours

**Persistence & Degradability**

For an inorganic substance, biotic degradation in the environment is not a relevant process. The fraction of molybdenum metal that will be dissolved when released into the environment will be present as the molybdate species under normal environmental conditions.

**Bioaccumulation****Molybdenum**

Bioaccumulation is not significant in aquatic or terrestrial environments.

**Mobility****Molybdenum**

The molybdate ion is soluble in water, leachable through normal soil and mobile in sediment.

**\*\*\*Section 13 – Disposal Considerations\*\*\*****Disposal Methods**

Observe all federal, state and local regulations when disposing of this substance.

**\*\*\*Section 14 – Transportation Information\*\*\*****DOT**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

**IMDG**

Not regulated as dangerous goods.

**\*\*\*Section 15 – Regulatory Information\*\*\*****U.S. Federal Regulations**

This product is a "Hazardous Chemical" as defined by OSHA.

**TSCA**

Not Regulated.

**CERCLA (Hazardous Substance 40 CFR302.4)**

Not Regulated.

**SARA 302 and 304 Emergency release notification / EHS**

Not Regulated.

**Superfund Amendments and Reauthorization Action of 1986**

<b>Hazard Categories</b>	Immediate Hazard – Yes
	Delayed Hazard – Yes
	Fire Hazard – No
	Pressure Hazard – No
	Reactive Hazard – No

**SARA 311/312 –Yes Hazardous Chemical****SARA 313 (TRI Reporting) Yes (Molybdenum Trioxide CAS 1313-27-5 (85-98%))****Clean Air Act –**

**HAP – Not regulated**

**Section 112 (r) Accidental Release – Not regulated**



Molybdc Oxide

## Safety Data Sheet

SDS ID: DJJFA013

**SDWA – Not regulated**

**US State Regulations**

**US Massachusetts RTK Substance List - Molybdenum Trioxide (CAS 1313-27-5)**

**US New Jersey Worker and Community RTK Act - Molybdenum Trioxide (CAS 1313-27-5)**

**US Pennsylvania Worker and RTK Law - Molybdenum Trioxide (CAS 1313-27-5)**

**TSCA Inventory – Complies with the requirements in the US.**

<b>* * *Section 16 – Other Information* * *</b>
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