MATERIAL SAFETY DATA SHEET
MOLYBDENUM TRIOXIDE

1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: Molybdenum Trioxide
Synonyms: Molybdenum (VI) oxide
Company Identification: Sisco Research Laboratories Pvt. Ltd.
Andheri (East), Mumbai – 400 099.
Tel : +91 22 2687 2601
Fax : +91 22 2687 8241
Website : www.srlchem.com

2 - COMPOSITION, INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>1313-27-5</td>
<td>Molybdenum trioxide</td>
<td>99%</td>
<td>215-204-7</td>
</tr>
</tbody>
</table>

3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Irritating to eyes and respiratory system. Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Potential Health Effects
Eye: Causes eye irritation.
Skin: May cause skin irritation. May be harmful if absorbed through the skin.
Ingestion: Harmful if swallowed. May cause irritation of the digestive tract.
Inhalation: Harmful if inhaled. Causes respiratory tract irritation.
Chronic: Prolonged or repeated eye contact may cause conjunctivitis.

4 - FIRST AID MEASURES

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Get medical aid. Wash mouth out with water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.
## 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:**
Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

## 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. Avoid generating dusty conditions. Do not let this chemical enter the environment.

## 7 – HANDLING AND STORAGE

**Handling:**
Use with adequate ventilation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

**Storage:**
Store in a cool, dry place. Store in a tightly closed container.

## 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 ventilation to keep airborne concentrations low.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Country</th>
<th>Exposure Limit Description</th>
<th>Concentration Unit</th>
<th>Concentration (as Mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom, WEL - TWA:</td>
<td>(molybdenum soluble compounds)</td>
<td>5 mg/m3 TWA</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td>United Kingdom, WEL - STEL:</td>
<td>(molybdenum soluble compounds)</td>
<td>10 mg/m3 STEL</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td>United States OSHA:</td>
<td>5 mg/m3 TWA (as Mo)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium - TWA:</td>
<td>(molybdenum soluble compounds)</td>
<td>5 mg/m3 VLE (as Mo)</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td>France - VME:</td>
<td>(molybdenum soluble compounds)</td>
<td>5 mg/m3 VME (as Mo)</td>
<td></td>
</tr>
<tr>
<td>France - VLE:</td>
<td>(molybdenum soluble compounds)</td>
<td>10 mg/m3 VLE (as Mo)</td>
<td></td>
</tr>
<tr>
<td>Germany:</td>
<td>(molybdenum soluble compounds)</td>
<td>5 mg/m3 VME (as Mo)</td>
<td></td>
</tr>
<tr>
<td>Malaysia:</td>
<td>(molybdenum soluble compounds)</td>
<td>5 mg/m3 TWA (as Mo)</td>
<td></td>
</tr>
<tr>
<td>Netherlands:</td>
<td>(molybdenum soluble compounds)</td>
<td>5 mg/m3 MAC (as Mo)</td>
<td></td>
</tr>
</tbody>
</table>
Spain: (molybdenum soluble compounds): 5 mg/m3 VLA-ED (as Mo)

**Personal Protective Equipment**

Eyes: Wear chemical splash goggles.

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.

### 9 - PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Solid

**Molecular Formula:** MoO$_3$

**Molecular Weight:** 143.94

### 10 - STABILITY AND REACTIVITY

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

**Conditions to Avoid:** Incompatible materials.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, active metals, bromine trifluoride, chlorine trifluoride, magnesium, lithium.

**Hazardous Decomposition Products:** Not available

**Hazardous Polymerization:** Will not occur.

### 11 - TOXICOLOGICAL INFORMATION

**RTECS#:** CAS# 1313-27-5: QA4725000

**LD50/LC50:** RTECS: **CAS# 1313-27-5:** Inhalation, rat: LC50 = >5840 mg/m3/4H; Oral, rat: LD50 = 2689 mg/kg; Skin, rat: LD50 = >2 gm/kg

**Carcinogenicity:** Molybdenum(VI) oxide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

**Other:** See actual entry in RTECS for complete information.

### 12 - ECOLOGICAL INFORMATION

**Other:** Do not empty into drains.

### 13 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.
### 14 - TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>Shipping Name</th>
<th>IATA</th>
<th>IMO</th>
<th>RID/ADR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not regulated</td>
<td>Not regulated</td>
<td>Not regulated</td>
<td></td>
</tr>
<tr>
<td>as a hazardous material</td>
<td>as a hazardous material</td>
<td>as a hazardous material</td>
<td></td>
</tr>
</tbody>
</table>

### 15 - REGULATORY INFORMATION

#### 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**

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

**US Federal**

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

### 16 - ADDITIONAL INFORMATION

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