



# Material Safety Data Sheet

## Molybdenum Metal, Sheet/Bulk

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### 1. Identification

CHEMICAL NAME/SYNONYMS-	Molybdenum metal
CHEMICAL FAMILY-	Metal
PRODUCT OR TRADE NAME-	Molybdenum metal
CAS # -	7440-47-3
CHEMICAL FORMULA-	Mo

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### 2. Composition

<u>Component</u>	<u>CAS #</u>	<u>Appr %</u>
Molybdenum	7440-47-3	100%

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### 3. Hazard Identification

EMERGENCY OVERVIEW: Laboratory tests indicate that in solid sheet form, this material is stable and safe.

PHYSICAL STATE: Silver-gray sheets

POTENTIAL HEALTH EFFECTS (overview): The material in either solid or alloy form is generally not considered hazardous.

SYMPTOMS OF EXPOSURE: N/A

PRIMARY ROUTES OF ENTRY: Inhalation, skin contact, eye

HUMAN EFFECTS AND SYMPTOMS OF EXPOSURE: N/A

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Individuals, who may have had allergic reactions to metals or sensitivity, may encounter skin rash or dermatitis, if skin contact with this product.

CARCINOGENIC REFERENCES: N/A.

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### 4. First Aid Measures

FIRST AID FOR EYES: Dust or powder should be flushed from the eyes with running water for 15 minutes. If irritation persists, obtain medical assistance.

FIRST AID FOR SKIN: Skin cuts can be treated by standard first aid. If irritation persists obtain medical assistance.

FIRST AID FOR INHALATION: N/A

FIRST AID FOR INGESTION: Seek medical assistance.

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### 5. Fire Fighting Measures

FLASH POINT: Non-flammable as a solid

FLAMMABLE LIMITS IN AIR: Flammable limit in air, % by vol.

LEL (Lower Explosive Limit): Not Applicable



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UEL (Upper Explosive Limit): Not Applicable

**FIRE EXTINGUISHING MEDIA:** This material is non-combustible. Use appropriate extinguishing agent for surrounding fires. Do not use water to extinguish fires around operations involving molten metal, due to the potential for a steam explosion. Use dry powder, sand, or water fog.

**FIREFIGHTING PROCEDURE:** Self-contained breathing apparatus should be worn when fighting fires

**FIRE AND EXPLOSION HAZARDS:** This is a stable material and will not burn or ignite.

### 6. Accidental Release Measures

**SPILL RESPONSE:** Because it is a non-renewable resource, this material should be reclaimed when possible.

**DISPOSAL CONSIDERATIONS:** Because it is a non-renewable resource, this material should be reclaimed when possible. When reclaiming is not feasible and disposal the only alternative, then it should be done in accordance with all applicable federal, state, and local regulations.

### 7. Handling and Storage

In solid and as-received form, this material poses no special problems. Store metal in a dry area. Do not store adjacent to acids.

### 8. Exposure Controls and Personal Protection

**EYE PROTECTION REQUIREMENTS:** No special requirements.

**SKIN PROTECTION REQUIREMENTS:** No special requirements..

**RESPIRATORY PROTECTION:** No special requirements.

**OTHER PROTECTIVE EQUIPMENT:** N/A

**EXPOSURE LIMITS:** Not established for product as a whole. Refer to Section 02 above.

**VENTILATION REQUIREMENTS:** N/A

**ENVIRONMENTAL SURVEILLANCE:** Not required

### 9. Physical and Chemical Properties

**BOILING POINT.....** 760 mm Hg : 4639°C (8382°F)

**COEFF. OF WATER/OIL DIST.....** Not Applicable

**pH (Liquids Only).....** Not Applicable

**% VOLATILE BY VOLUME.....** Essentially zero

**MELTING POINT.....** 2623°C (4753°F)



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VAPOR PRESSURE..... mm Hg: Not Applicable  
VAPOR DENSITY/AIR IS 1..... Not Applicable  
SOLUBILITY IN WATER..... Insoluble  
APPEARANCE AND COLOR..... Silver-grey in color in sheet form  
SPECIFIC GRAVITY..... (H<sub>2</sub>O = 1): 10.22  
EVAPORATION RATE..... (n-butyl acetate = 1): Zero  
ODOR..... None

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### 10. Stability and Reactivity

STABLE: Yes

HAZARDOUS POLYMERIZATION: Does not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: None under proper use conditions

CONDITIONS TO AVOID: Conditions that could create dust or fumes. Note that in a metallographic laboratory where these granules might be polished for examination, if the polishing table and media should dry out, there could be created a dust hazard. Important to keep such polishing tables and media wet at all times and when the media is changed, it should be done when everything is wet to avoid creating a dust hazard.

MATERIALS TO AVOID: Basic incompatibilities are acetylene, ammonia and strong oxidizers.

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### 11. Ecological Information

ENVIRONMENTAL: When used and/or disposed of as indicated, no adverse environmental effects are foreseen. If this material is dissolved, the soluble form can be detrimental should it escape into the environment.

MOBILITY: Non-volatile/Insoluble in water.

DEGRADABILITY: Not biodegradable

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### 12. Disposal Considerations

Product and packaging must be disposed of in accordance with local and national regulations. Because it is a non-renewable resource, waste material is usually a candidate for recycling.

This material is NOT classified as a hazardous material by RCRA.

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### 13. Regulatory Information

OSHA Status: N/A

TSCA Status: These products are pure Molybdenum metal.



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RCRA Status: N/A

California (USA) Status: N/A

SARA Title III: No hazardous substances.

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### 14. OTHER INFORMATION

*The information above is believed to be accurate and represents the best information currently available to us. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, with a controlled environment. 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 TieWay International, Inc. 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 TieWay International, Inc. has been advised of the possibility of such damages*

#### References:

1. American Chemical Society, STN Easy Online Database
2. Bretherics Reactive Chemical Hazards Database. Version 2.
3. Gassarett and Doulls Toxicology, The Basic Science of Poisons.
4. Hawleys Condensed Chemical Dictionary, Thirteenth Edition
5. IARC monographs on the Evaluation of the Carcinogenic Risk of Chemicals to man, WHO International Research on Cancer.
6. Industrial Hygiene and Toxicology, by F. A. Patty.
7. National Library of Medicine, Department of Health and Human Services, Hazardous Substances Data Bank (HSDB).
8. National Library of Medicine, Department of Health and Human Services, Hazardous Substances Data Bank (HSDB).
9. Niosh Registry of Toxic Effects of Chemical Substances (REECS) and Pocket Guide to Chemical Hazards.
10. OSHA Hazard Communication Standard, 1910.1200 and Z Tables.
11. Sax Dangerous Properties of Industrial Materials. Tenth Edition.
12. The Merck Index: An Encyclopedia of Chemicals and Drugs. Merck and Company. Twelfth Edition 1998.
13. Threshold limit Values for Chemical Substances and Physical Agents in the Work Environmental and Biological Exposure Indices. TLV Booklet, 2001.

All questions should be directed to Customer Service (214-274-4223) for assistance

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