

# SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

Date Issued : 4/2/2012  
 SDS No : M-1000-185  
 Date Revised : 9/8/2015  
 Revision No : 1

## Molybdenum metal pieces

### SECTION 1 : Identification of the substance/preparation and of the company/undertaking

#### 1.1. Product identifier

**Product name** : Molybdenum metal pieces

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses** : Physical vapor deposition of thin films

#### 1.3. Details of the supplier of the safety data sheet

##### Manufacturer

Kurt J Lesker Company  
 United States  
 1925 Route 51  
 Jefferson Hills, PA 15025

**Service Number** : 412-387-9200

**E-Mail** : msds@lesker.com

Kurt J Lesker Company LTD  
 United Kingdom  
 15-16 Burgess Road  
 Hastings, East Sussex, TN35 4NR  
 England

**Customer Service** : +44 (0) 1424 458100

#### 1.4. Emergency telephone number

24-Hour Emergency Response provided by  
 3E Global Incident Response Hotline

When calling, refer to Kurt J Lesker Company  
 Global Response Access Code: 333594

North America [USA, Canada, Mexico]: 1-866-519-4752

Mainland China: (+) -86- 4001 2001 74

Europe: {+}-1-760-476-3961

Asia Pacific: {+}-1-760-476-3960

Middle East & Africa: {+}-1-760-476-3959

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

**Classification according to Directive 67/548/EEC**

**Classification according to Regulation (EC) No 1272/2008 [CLP]**

**Health** : This substance or mixture is not hazardous and is not classified under GHS.

#### 2.2. Label elements

**R&S statement(s)** : This material is not classified as hazardous according to Directive 67/548/EEC.

#### 2.3. Other hazards

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- Immediate concerns** : Negligible fire or explosion hazard in bulk form. Powdered material may form explosive dust-air mixtures.
- Physical hazards** : This substance is not considered hazardous in the form supplied. Dusts at sufficient concentrations can form explosive mixtures with air.

### SECTION 3: Composition / information on ingredients

#### 3.1. Substances

Chemical Name	CAS	EINECS No.	Wt. %
Molybdenum	7439-98-7	231-107-2	100

#### 3.2. Mixtures

Not Applicable

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

- Following eyes** : Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.
- Following skin** : Wash with soap and water. Get medical attention if irritation develops or persists.
- Following ingestion** : Rinse mouth. Get medical advice/attention.
- Following inhalation** : Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

#### 4.3. Indication of any immediate medical attention and special treatment needed

### SECTION 5: Fire fighting measures

#### 5.1. Extinguishing media

- Extinguishing media** : Use a Class D dry powder extinguisher, dolomite, dry sand, graphite, or soda ash.

#### 5.2. Special hazards arising from the substance or mixture

- Explosion hazards** : Dusts at sufficient concentrations can form explosive mixtures with air.

#### 5.3. Advice for firefighters

- Fire fighting procedures** : As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

- General procedures** : Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all ignition sources if safe to do so. Avoid formation of dust. Provide appropriate exhaust ventilation where dust is formed. Avoid breathing (dust, vapor, mist, gas). Practice good

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chemical hygiene during and after use. Avoid release to the environment.

#### 6.2. Environmental precautions

#### 6.3. Methods and material for containment and cleaning up

- Small spill** : Clean up spills immediately, observing precautions in Protective Equipment section.
- Large spill** : Collect spilled material in appropriate container. Spill may be reportable . Consult section 15 for Reportable Quantities.

#### 6.4. Reference to other sections

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- General procedures** : To avoid risks to human health and the environment, comply with the instructions for use.
- Handling** : Keep away from heat and flame. Keep container closed when not in use. Remove contaminated clothing and wash before reuse. Wash hands before eating and wash before reuse. Wash thoroughly after handling.
- Storage** : Keep container closed when not in use. Store in a cool dry place.

#### 7.2. Conditions for safe storage, including any incompatibilities

#### 7.3. Specific end use(s)

### SECTION 8: Exposure controls / personal protection

#### 8.1. Control parameters

#### 8.2. Exposure controls

- Engineering controls** : Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- Eye/face protection** : Wear safety glasses.
- Skin protection** : Wear protective gloves.
- Respiratory protection** : If ventilation is inadequate and this material is handled at elevated temperatures or dusts/fumes/mists are generated a NIOSH/MSHA approved air purifying respirator with a manufacturers approved cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
- Work hygienic practices** : Practice good chemical hygiene during and after use.

#### Additional information

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COMPONENT EXPOSURE LIMITS

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Component	Location, Type	Value (mg/m3)
Molybdenum	ACGIH TLV TWA (Respirable)	3
	OSHA OEL TWA (Total)	15
	Canada - AB, BC, ON TWA (Respirable)	3
	Canada - PQ	10
	Europe TWA	10
	Poland TWA (Respirable)	4
	Poland STEL (Respirable)	10
	Spain TWA (Respirable)	3
	Sweden TWA (Respirable)	5
	Australia, NZ, Singapore TWA	10
	UK WEL TWA	10
	UK WEL STEL	20

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	: Solid
<b>Colour</b>	: Lusterous grey
<b>Odour</b>	: None
<b>pH</b>	: NA = Not Applicable
<b>Melting temperature</b>	: 2623°C
<b>Boiling temperature</b>	: 4639°C
<b>Flash point</b>	: NA = Not Applicable
<b>Flammable limits</b>	: NA = Not Applicable
<b>Vapor pressure</b>	: NA = Not Applicable
<b>Vapor density</b>	: NA = Not Applicable
<b>Density</b>	: 10.28 at 25°C
<b>Solubility in water</b>	: Insoluble
<b>Auto-ignition temperature</b>	: Not Available

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**Molecular weight** : 95.96

### 9.2. Other information

**Percent volatile** : NA = Not Applicable

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

**Stable** : Yes

#### 10.2. Chemical stability

#### 10.3. Possibility of hazardous reactions

**Hazardous decomposition** : No

#### 10.4. Conditions to avoid

#### 10.5. Incompatible materials

**Incompatible materials** : Strong acids, Oxidizing materials, Halogens.

#### 10.6. Hazardous decomposition products

**Hazardous decomposition products** : Toxic metal fumes

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Acute

**Dermal LD<sub>50</sub>** : Not Available

**Skin absorption** : Not Available

**Oral LD<sub>50</sub>** : Not Available

**Inhalation LC<sub>50</sub>** : Not Available

**Mutagenicity** : Not Available

**Reproductive effect** : Not Available

### SECTION 12: Ecological information

#### 12.1. Toxicity

##### Aquatic toxicity (acute)

**96-hour LC<sub>50</sub>** : 800 mg/L (Oncorhynchus mykiss)

#### 12.2. Persistence and degradability

**Persistence and degradability** : Not Available

#### 12.3. Bioaccumulative potential

**Bioaccumulative potential** : Not Available

#### 12.4. Mobility in soil

#### 12.5. Results of PBT and vPvB assessment

#### 12.6. Other adverse effects

### SECTION 13: Disposal considerations

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### 13.1. Waste treatment methods

- Product disposal** : Contact a licensed waste disposal company.
- Disposal method** : Dispose of according to applicable federal, state, provincial, and local regulations.
- Empty container** : Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

### SECTION 14: Transport information

#### 14.1. UN number

#### 14.2. UN proper shipping name

**UN proper shipping name** : Not Regulated

#### 14.3. Transport hazard class(es)

#### 14.4. Packing group

#### 14.5. Environmental hazards

#### 14.6. Special precautions for user

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

##### National regulations (Germany)

**(WGK) classification** : nwg- Not hazardous

#### 15.2. Chemical safety assessment

### SECTION 16: Other information

**Approved by** : EHS DEPT

**Prepared by** : E Bolton

**Information contact** : msds@lesker.com

**Revision summary** : This MSDS replaces the 7/26/2012 MSDS.

**Manufacturer disclaimer** :

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