

## GHS Safety Data Sheet

SDS No. : MOI04PAEG

Date Issued: 2016/10/03

### Section 1. Identification of the substance or mixture and of the supplier

#### 1.1 Product Information

**Product name:** MoSe<sub>2</sub> Molybdenum selenide

Product number:	Purity	Form	Size (mm)
MOI08PB	99.9%(3N)	powder	—

#### 1.2 Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd  
 1-28, 5-chome, Chiyoda, Sakado-shi, Saitama Japan 350-0284  
 Phone: +81-49-284-1511 Fax: +81-49-284-1351  
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### Section 2. Hazards identification

#### GHS Classification

This GHS classification utilized “CLP classification” results as reference.

CLP classification ; The classification and categorization adopted in CLP (Regulation on Classification, Labelling and Packaging of Substances and Mixtures, Regulation (EC)1272/2008)

Health Hazards	Environmental Hazards	Physical Hazards
Acute toxicity(Oral): Category3 Acute toxicity(inhalation- dust): Category3 Specific target organ toxicity, repeated exposure: Category 2	Hazardous to the aquatic environment, Acute toxicity: Category 1 Chronic toxicity: Category 1	No data available

GHS Label: T, C, V



Pictograms or symbols

Warning word: DANGER

Hazard information	Description of precaution
<b>Toxic if swallowed</b> <b>Toxic if inhaled</b> <b>May cause damage to organs through prolonged or repeated exposure</b> <b>Very toxic to aquatic life</b> <b>Very toxic to aquatic life with long lasting effects</b>	Avoid breathing dust/mist/gas/fume/vapors/spray. Do not eat, drink or smoke when using this product, and wash hands thoroughly after handling. Use only outdoors or in well-ventilated area. Avoid release to the environment and collect spillage. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Protect from sunlight. Store in a cool, dry and well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/ container in accordance with local/national regulations.

#### Additional hazard information :

In case of fire, the product may liberate toxic gases/ fume.

With respect to additional hazard information, see Section 11.

### Section 3. Composition / information on ingredients

Chemical or common name: Molybdenum(IV) selenide  
 Chemical formula: MoSe<sub>2</sub>  
 Single Substance or Compound: Single substance  
 Composition: 100%

CAS#:	12058-18-3
RTECS#:	not listed
TSCA inventory:	listed
EINECS:	2350279

#### Section 4. First aid measures

Eye contact:	Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.
Skin contact:	Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.
Inhalation:	Remove the exposed person immediately and provide fresh air. Get medical attention.
Ingestion:	Rinse mouth and throat with water. Get medical attention immediately.

#### Section 5. Fire fighting measures

Extinguishing media:	Use media appropriate for surrounding fire.
Fire fighting:	Self-contained breathing apparatus and full protective clothing should be used, if the material is involved in fire. In case of fire, the product may liberate toxic gases/ fume.

#### Section 6. Accidental release measures

Personal Precautions:	Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its dust/ fume.
Environmental hazard precautions:	Shut off leak if without risk. Prevent flow out to river, etc. so as not to badly affect.
Method for containment and cleaning up:	Indoor leakage: Ventilate as much as possible until the cleaning is completed. Outdoor leakage: Work from the windward and evacuate the leeward crowd. Gather up, pack in closed DOT-approved waste container as much as possible. Carefully collect remnant and move to a safe place.

#### Section 7. Handling and storage

##### Precautions to be taken in handling:

Safe handling:	Use protective wears and local ventilation equipment, if inhalation or skin contact is foreseen. Avoid prolonged or repeated exposure.
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##### Precautions to be taken in storage:

General precautions:	Store the material in a sealed container. Store in a cool, dry, well ventilated and dark place away from incompatible materials.
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#### Section 8. Exposure controls / personal protection

Exposure guideline:

Chemical Name	ACGIH(2013) TLV-TWA mg/m <sup>3</sup>	OSHA(2006) PEL-TWA mg/m <sup>3</sup>
Mo (insoluble compounds, as Mo)	3(R), 10(I)	15(T)
Se (compounds, as Se)	0.2	0.2

R: Respirable fraction    I: Inhalable fraction    T: Total dust

Facility measures: Local ventilation of closed work room or total proper ventilation to prevent inhalation.

Protective ware: Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, impervious gloves, protective wear, protective boots.

### Section 9. Physical and chemical properties

Color and Form: Gray solid  
 Chemical formula: MoSe<sub>2</sub>  
 Formula weight: 253.9  
 Melting point: >1200 °C  
 Density: 6.90 g/cm<sup>3</sup>  
 Water solubility: No data available  
 Flammability: No data available  
 Oxidation: None

### Section 10. Stability and reactivity

Stability: Stable when stored in sealed container at room temperature.

Reactivity

Incompatibility: No data available

Condition to avoid: Heat

Hazardous decomposition products.:  
 Selenium and compounds

### Section 11. Toxicological information

Acute toxicity(Oral): GHS : Category 3; Toxic if swallowed  
 Acute toxicity(inhalation- dust,mist): GHS : Category 3; Toxic if inhaled  
 Skin corrosive / irritation: GHS : No data available  
 Serious eyes damage / eye irritation: GHS : No data available  
 Respiratory sensitization: GHS ; No data available  
 Skin sensitization: GHS ; No data available  
 Germ cell mutagenicity: GHS ; No data available  
 Carcinogenicity: GHS : No data available  
 IARC(2015) Selenium and selenium compounds : Group 3 :  
 The agent is not classifiable as to its carcinogenicity to humans.  
 Reproductive toxicity: GHS : No data available  
 Specific target organ toxicity  
 –single exposure: GHS ; No data available  
 Specific target organ toxicity  
 –repeated exposure: GHS : Category 2; May cause damage to organs through  
 prolonged or repeated exposure  
 Aspiration hazard: GHS ; No data available

### Section 12. Ecological information

Ecotoxicity:  
 Hazards to the aquatic environment GHS : Category 1; Very toxic to aquatic life  
 –acute toxicity:  
 Hazards to the aquatic environment  
 –chronic toxicity: GHS : Category 1; Very toxic to aquatic life with long lasting  
 effects

Hazrdous the ozone layer:	GHS ; No data available No Freon or Halon
Fish toxicity:	No data available
Degradability:	No data available
Bioaccumulative potential:	Mo biological half-life 5 day, Rate of absorption oral=0.8, Respiratory tract=0.65 Se biological half-life 11 day, Rate of absorption oral=0.9, Respiratory tract=0.7
Mobility in soil:	No data available

### Section 13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

### Section 14. Transport information

UN number: 3283  
 IATA shipping name: Selenium compound, solid, n.o.s.  
 IATA classification: Hazardous Class 6.1 (Toxic substances)  
 IATA packing group: III  
 HS code: 2842.90  
 Marine pollution: Yes (Environmentally hazardous substances)

### Section 15. Regulatory information

TSCA inventory : listed.  
 Please refer to any other local / national measures that may be relevant.

### Section 16. Other information

The information described above is believed to be correct. However, Kojundo Chemical Lab. makes no representation, warranty nor guarantee of any kind with respect to the information on this data sheet or any use of the product based upon this information.