

MOLYBDENUM SELENIDE
SAFETY DATA SHEET

DATE OF LAST REVISION: 06/30/15

Section 1: Identification

Product Name: Molybdenum Selenide
CAS Number: 12058-18-3 / **EC Number:** 235-027-9
Company: Angstrom Sciences, Inc.
40 South Linden Street
Duquesne, PA 15110
For more information call: 412-469-8466
(Monday - Friday 9-5:00 EST)

Section 2: HAZARD IDENTIFICATION

Signal Word: Danger



Hazard Statements: H301 + H331: Toxic if swallowed or if inhaled.
H373: May cause damage to the central nervous system, the liver and the digestive system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative

Precautionary Statements: P260 Do not breathe dust/fume/gas/mist/vapours/spray
P301 + P310: IF SWALLOWED: Immediately call a Poison center or doctor/physician.
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P405: Store locked up
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

HMIS Health Ratings (0-4):

Health: 2
Flammability: 0
Physical: 1

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Section 3: Composition/Information on Ingredients

Chemical Family: Ceramic
Additional Names: Molybdenum (IV) selenide, Molybdenum diselenide
Molybdenum sulfide (MoS₂)
Percentage: 100 wt%
CAS#: 12058-18-3
EC number: 235-027-9

Section 4: FIRST AID MEASURES

General Treatment: Seek medical attention if symptoms persist.

Special Treatment: None

Important Symptoms: None

Eye Contact: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

Skin Contact: Wash affected area with mild soap and water. Remove any contaminated clothing.

Inhalation: Remove to fresh air. If required, give artificial respiration. Seek medical advice.

Ingestion: Do not induce vomiting, Seek immediate medical attention.

Section 5: FIRE FIGHTING MEASURES

Flammability: Non-Flammable

Extinguishing Media: CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special Fire Fighting Procedure: Use full-face, self contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.

Environmental Precautions: Isolate runoff to prevent environmental pollution.

Section 7: HANDLING AND STORAGE

Handling Precautions for safe handling: Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in Section 10.

Work/Hygienic Maintenance: Do not use tobacco or food in work area. Wash thoroughly before eating

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and smoking. Do not blow dust off clothing or skin with compressed air.

Ventilation: Provide sufficient ventilation to maintain concentration at or below threshold limit.

Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Permissible Exposure Limits:	0.2 mg/m ³ as Se, long-term value
Threshold Limit Value:	0.2 mg/m ³ as S, long-term value
Special Equipment:	None
Respiratory Protection:	Dust respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Color:	Dark grey
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	1200°C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	6.0 g/cc
Molecular Weight:	253.86 g/mol

Section 10: STABILITY AND REACTIVITY

Reactivity:	Reacts with oxidizing agents
Chemical Stability:	Stable under recommended storage conditions
Incompatible Conditions:	None
Hazardous Decomposition Products:	Metal oxide fume

Section 11: TOXICOLOGICAL INFORMATION

Potential Health Effects:

Eyes: Causes irritation

Skin: Cause irritation

Ingestion: Toxic

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Inhalation: Toxic

Chronic: N/A

Signs & Symptoms:

N/A

Aggravated Medical Conditions:

N/A

Median Lethal Dose:

N/A

Carcinogen:

EPA-D: Not classifiable as to human carcinogenicity; inadequate human and animal evidence of carcinogenicity or no data are available. NTP-R: Reasonably anticipated to be a carcinogen, limited evidence of carcinogenicity from epidemiologic studies. IARC-3: Not classifiable as to carcinogenicity to humans. Selenium may cause amyotrophic lateral sclerosis, bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss. Acute molybdenum poisoning may cause severe gastrointestinal irritation, diarrhea, coma and death from cardiac failure. Chronic molybdenum poisoning in laboratory animals has caused loss of weight, anorexia, anemia, deficient lactation, male sterility, osteoporosis and bone joint abnormalities.

Section 12: ECOLOGICAL INFORMATION

Aquatic Toxicity: High

Persistence Bioaccumulation Toxicity: No

Very Persistent, Very Bioaccumulative: No

Notes: Very toxic for aquatic organism.

May cause long lasting harmful effect on aquatic life.

Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach any water sources. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment.

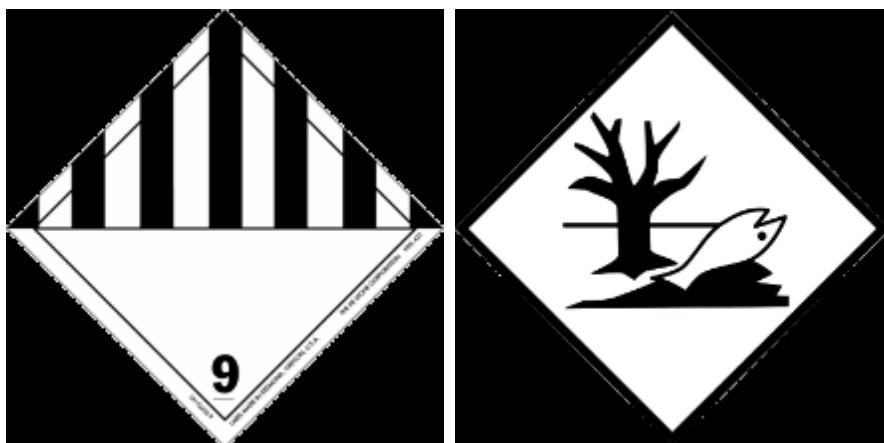
Section 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with local, state, national, and international regulations

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Section 14: TRANSPORT INFORMATION

Hazardous: Hazardous for transportation.



Hazard Class: 9 Miscellaneous dangerous substances and articles.

Packing Group: III

UN Number: UN3077

Proper Shipping Name: Environmentally hazardous substances, solid, n.o.s. (Molybdenum (IV) selenide)

Section 15: REGULATORY INFORMATION

Sec 302 Extremely Hazardous: No

Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: Yes

Section 16: OTHER INFORMATION

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.