



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

Weitere Information auf den folgenden Seiten!  
See the following pages for more information!



### Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

### Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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# Molybdenum(IV) selenide: sc-269613



The Power to Question

## MATERIAL SAFETY DATA SHEET

### 1 Identification of substance:

**Product Name:** Molybdenum(IV) selenide  
**Catalog Number:** sc-269613  
**Supplier:** Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800  
**Emergency:** ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### 2 Hazards identification

#### Classification of the substance or mixture



GHS06 Skull and crossbones

H301 Toxic if swallowed.  
H331 Toxic if inhaled.



GHS08 Health hazard

H373 May cause damage to organs through prolonged or repeated exposure.



GHS09 Environment

H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

#### Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R23/25: Toxic by inhalation and if swallowed.



N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R33: Danger of cumulative effects.

#### Label elements

#### Labelling according to EU guidelines:

#### Code letter and hazard designation of product:

T Toxic  
N Dangerous for the environment

#### Risk phrases:

23/25 Toxic by inhalation and if swallowed.  
33 Danger of cumulative effects.  
50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

#### Safety phrases:

20/21 When using do not eat, drink or smoke.  
28 After contact with skin, wash immediately with plenty of water  
45 In case of accident or if you feel unwell, seek medical advice immediately.  
60 This material and its container must be disposed of as hazardous waste.  
61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**Hazard description:**  
**WHMIS classification**



**Classification system**  
**HMIS ratings (scale 0-4)**  
**(Hazardous Materials Identification System)**

HEALTH	2	Health (acute effects) = 2
FIRE	0	Flammability = 0
REACTIVITY	1	Reactivity = 1

**Other hazards**  
**Results of PBT and vPvB assessment**  
**PBT:** Not applicable.  
**vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Substances**  
**(CAS#) Description:**  
Molybdenum(IV) selenide (CAS# 12058-18-3)  
**Identification number(s):**  
**EINECS Number:** 235-027-9  
**Index number:** 034-002-00-8

### 4 First aid measures

**Description of first aid measures**  
**General information**  
Immediately remove any clothing soiled by the product.  
Remove breathing apparatus only after contaminated clothing has been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.  
**After inhalation**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.  
**After skin contact**  
Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.  
**After eye contact**  
Rinse opened eye for several minutes under running water. Then consult a doctor.  
**After swallowing**  
Do not induce vomiting; immediately call for medical help.  
Seek immediate medical advice.

### 5 Firefighting measures

**Extinguishing media**  
**Suitable extinguishing agents**  
Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.  
**Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Toxic metal oxide fume  
Hydrogen selenide  
**Advice for firefighters**  
**Protective equipment:**  
Wear self-contained respirator.  
Wear fully protective impervious suit.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
**Environmental precautions:**  
Do not allow material to be released to the environment without proper governmental permits.  
**Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
**Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

### Handling

#### Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

**Information about protection against explosions and fires:** Keep ignition sources away.

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

##### Storage

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** No information known.

##### Further information about storage conditions:

Keep container tightly sealed. Store at room temperature.

Store in cool, dry conditions in well sealed containers.

## 8 Exposure controls/personal protection

### Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

### Control parameters

**Components with limit values that require monitoring at the workplace:**

Selenium and selenium compounds (as Se)

	mg/m <sup>3</sup>
ACGIH TLV	0.2
Austria MAK	0.1
Belgium TWA	0.2
Denmark TWA	0.1
Finland TWA	0.1; 0.3-STEL
Germany MAK	0.1
Hungary	0.1-STEL
Ireland TLV	0.1
Japan OEL	0.1
Korea TLV	0.2
Netherlands MAC-TGG	0.1
Poland TWA	0.1; 0.3-STEL
Sweden NGV	0.1
Switzerland MAK-W	0.1
United Kingdom TWA	0.1
USA PEL	0.2

Molybdenum and compounds (as Mo)

	mg/m <sup>3</sup>
ACGIH TLV	10 (Mo)
Austria MAK	15 (Mo)
Denmark TWA	10 (Mo)
Finland TWA	5 (Mo)
Germany MAK	15 (Mo)
Korea TLV	10 (Mo)
Poland TWA	4 (Mo); 10 (Mo)-STEL
Sweden NGV	10 (Mo) (total dust); 5 (Mo) (resp. dust)
Switzerland MAK-W	10 (Mo)
United Kingdom TWA	10 (Mo); 20 (Mo)-STEL
OSHA PEL	15 (Mo) (total dust)

**Additional information:** No data

### Exposure controls

#### Personal protective equipment

##### General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:** Impervious gloves

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

## 9 Physical and chemical properties

<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
<b>Form:</b>	Powder
<b>Formula:</b>	MoSe2
<b>Weight:</b>	253.86
<b>pH-value:</b>	Not applicable.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	1200°C (2192 °F)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined
<b>Flash point:</b>	Not applicable
<b>Flammability (solid, gaseous)</b>	Not determined.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Auto igniting:</b>	Not determined.
<b>Danger of explosion:</b>	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure:</b>	Not applicable.
<b>Density at 20°C (68 °F):</b>	6 g/cm <sup>3</sup> (50.07 lbs/gal)
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Insoluble
<b>Segregation coefficient (n-octanol/water):</b> Not determined.	
<b>Viscosity:</b>	
<b>dynamic:</b>	Not applicable.
<b>kinematic:</b>	Not applicable.

## 10 Stability and reactivity

### Reactivity

#### Chemical stability

#### Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known

**Incompatible materials:** No information known.

#### Hazardous decomposition products:

Toxic metal oxide fume

Hydrogen selenide

## 11 Toxicological information

### Information on toxicological effects

#### Acute toxicity:

#### Primary irritant effect:

**on the skin:** Irritant to skin and mucous membranes.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

#### Subacute to chronic toxicity:

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.

#### Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

IARC-3: Not classifiable as to carcinogenicity to humans.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

## 12 Ecological information

### Toxicity

**Acquatic toxicity:** No further relevant information available.

**Persistence and degradability** No further relevant information available.

### Behavior in environmental systems:

**Bioaccumulative potential** No further relevant information available.

**Mobility in soil** No further relevant information available.

### Ecotoxicological effects:

**Remark:** Very toxic for aquatic organisms

### Additional ecological information:

#### General notes:

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

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 material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

### Waste treatment methods

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

### Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

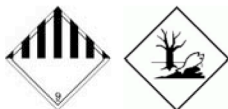
## 14 Transport information

### DOT regulations:



**Hazard class:** 9  
**Identification number:** UN3077  
**Packing group:** III  
**Proper shipping name (technical name):** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Molybdenum(IV) selenide)  
**Label:** 9

### Land transport ADR/RID (cross-border)



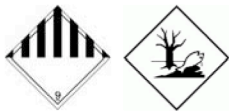
**ADR/RID class:** 9 (M7) Miscellaneous dangerous substances and articles  
**Danger code (Kemler):** 90  
**UN-Number:** 3077  
**Packaging group:** III  
**Special marking:** Symbol (fish and tree)  
**UN proper shipping name:** 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Molybdenum(IV) selenide)

### Maritime transport IMDG:



**IMDG Class:** 9  
**UN Number:** 3077  
**Label:** 9  
**Packaging group:** III  
**Marine pollutant:** No  
**Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Molybdenum(IV) selenide)

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class:	9
UN/ID Number:	3077
Label	9
Special marking:	Symbol (fish and tree)
Packaging group:	III
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Molybdenum(IV) selenide)

UN "Model Regulation": UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III  
Special precautions for user Warning: Miscellaneous dangerous substances and articles  
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

## 15 Regulatory information

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

Product related hazard informations:

Hazard symbols:

T Toxic  
N Dangerous for the environment

Risk phrases:

23/25 Toxic by inhalation and if swallowed.  
33 Danger of cumulative effects.  
50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

20/21 When using do not eat, drink or smoke.  
28 After contact with skin, wash immediately with plenty of water  
45 In case of accident or if you feel unwell, seek medical advice immediately.  
60 This material and its container must be disposed of as hazardous waste.  
61 Avoid release to the environment. Refer to special instructions/Safety data sheets

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

Information about limitation of use:

For use only by technically qualified individuals.  
This product contains selenium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.  
This product contains selenium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

## 16 Other information:

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

01/31/2013