

## 1 Identification

### Product identifier

**Product name:** Lead(II) selenide

**Stock number:** 12840

**CAS Number:**

12069-00-0

**EC number:**

235-109-4

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

**Identified use:** SU24 Scientific research and development

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

#### Manufacturer/Supplier:

Alfa Aesar

Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**



GHS06 Skull and crossbones

Acute Tox. 2 H300 Fatal if swallowed.

Acute Tox. 2 H330 Fatal if inhaled.



GHS08 Health hazard

Repr. 1A H360 May damage fertility or the unborn child.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS06 GHS08

### Signal word

Danger

### Hazard statements

H300+H330 Fatal if swallowed or if inhaled.

H360 May damage fertility or the unborn child.

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

### Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P284 [In case of inadequate ventilation] wear respiratory protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects



### Classification system

#### HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 2 Health (acute effects) = 2

FIRE 0 Flammability = 0

REACTIVITY 1 Physical Hazard = 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:

12069-00-0 Lead(II) selenide

#### Identification number(s):

EC number: 235-109-4

**Product name:** Lead(II) selenide

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**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.

**Information for doctor**

**Most important symptoms and effects, both acute and delayed** No further relevant information available.

**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**5 Fire-fighting measures**

**Extinguishing media**

**Suitable extinguishing agents** Special powder for metal fires. Do not use water.

**Special hazards arising from the substance or mixture** If this product is involved in a fire, the following can be released:

**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 of contaminated material as waste according to section 13.

Ensure adequate ventilation.

**Prevention of secondary hazards:** No special measures required.

**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:** No information known.

**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:** Not required.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**Specific end use(s)** No further relevant information available.

**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:**

Lead, elemental, and inorganic compounds (as Pb)

mg(Pb)/m3

ACGIH TLV 0.05; Confirmed animal carcinogen

Austria MAK 0.1

Belgium TWA 0.15

Denmark TWA 0.1

Germany MAK 0.1

Japan OEL 0.1

Korea TLV 0.05; Confirmed animal carcinogen

Netherlands TWA 0.15

Norway TWA 0.05

Poland TWA 0.05

Sweden TWA 0.05 (resp. dust)

0.1 (total dust)

Switzerland MAK-W 0.1

United Kingdom TWA 0.1

USA PEL 0.05

Selenium and selenium compounds (as Se)

mg/m3

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

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USA

Product name: <b>Lead(II) selenide</b>	
(Contd. of page 2)	
<div><div>Hungary0.1-STEL Japan OEL0.1 Korea TLV0.2 Netherlands MAC-TGG0.2 Poland TWA0.1; 0.3-STEL Sweden NGV0.1 Switzerland MAK-W0.1 United Kingdom TWA0.1 USA PEL0.2</div><div>Lead, elemental, and inorganic compounds (as Pb) mg(Pb)/m3 ACGIH TLV0.05 Confirmed animal carcinogen Austria MAK0.1 Belgium TWA0.15 Denmark TWA0.1 Germany MAK0.1 Japan OEL0.1 Netherlands TWA0.15 Norway TWA0.05 Poland TWA0.05 Switzerland MAK-W0.1 United Kingdom TWA0.1 Finland TWA0.1 France TWA0.15 Hungary STEL0.04 Sweden TWA0.1 (total dust) 0.05 (resp. dust) USA PEL0.05</div></div>	
<b>12069-00-0 Lead(II) selenide (100.0%)</b>	
PEL (USA)	Long-term value: 0.2 mg/m³ as Se
REL (USA)	Long-term value: 0.2 mg/m³ as Se
TLV (USA)	Long-term value: 0.2 mg/m³ as Se
EL (Canada)	Long-term value: 0.05 mg/m³ as Pb; IARC 2A, R
<b>Ingredients with biological limit values:</b>	
<b>12069-00-0 Lead(II) selenide (100.0%)</b>	
BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead
<b>Additional information:</b> No data	
<b>Exposure controls</b> <b>Personal protective equipment</b> <b>General protective and hygienic measures</b> 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. Maintain an ergonomically appropriate working environment. <b>Breathing equipment:</b> Refer to 29CFR1910.1025 for regulations on respiratory protection required during exposure to lead and lead compounds. Refer to 29CFR1910.1025 for regulations on respiratory protection required during exposure to lead and lead compounds. Use self-contained respiratory protective device in emergency situations. <b>Protection of hands:</b> Impervious gloves Check protective gloves prior to each use for their proper condition. The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. <b>Eye protection:</b> Safety glasses <b>Body protection:</b> Protective work clothing.	
<b>9 Physical and chemical properties</b>	
<b>Information on basic physical and chemical properties</b> <b>General Information</b> <b>Appearance:</b> Form: Chunks Color: Grey Odor: Product specific Odor threshold: Not determined.	
pH-value:	Not applicable.
<b>Change in condition</b> Melting point/Melting range: 1065 °C (1949 °F) Boiling point/Boiling range: Not determined Sublimation temperature / start: Not determined	
Flash point: Not applicable Flammability (solid, gaseous): Not determined. Ignition temperature: Not determined Decomposition temperature: Not determined Auto igniting: Not determined.	
Danger of explosion: Product does not present an explosion hazard. Explosion limits: Lower: Not determined Upper: Not determined Vapor pressure: Not applicable.	
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Product name: **Lead(II) selenide**

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Density at 20 °C (68 °F):	8.1 g/cm <sup>3</sup> (67.595 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with	
Water:	Insoluble
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity

**Reactivity** No information known.  
**Chemical stability** Stable under recommended storage conditions.  
**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  
**Conditions to avoid** No further relevant information available.  
**Incompatible materials:** No information known.  
**Hazardous decomposition products:**  
Toxic metal compounds  
Hydrogen selenide

11 Toxicological information

**Information on toxicological effects**  
**Acute toxicity:**  
Fatal if inhaled.  
Fatal if swallowed.  
**LD/LC50 values that are relevant for classification:** No data  
**Skin irritation or corrosion:** May cause irritation  
**Eye irritation or corrosion:** Irritating effect.  
**Sensitization:** No sensitizing effects known.  
**Germ cell mutagenicity:** No effects known.  
**Carcinogenicity:** No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.  
**Reproductive toxicity:** May damage fertility or the unborn child.  
**Specific target organ system toxicity - repeated exposure:** May cause damage to organs through prolonged or repeated exposure.  
**Specific target organ system toxicity - single exposure:** No effects known.  
**Aspiration hazard:** No effects known.  
**Subacute to chronic toxicity:**  
Lead and lead compounds may cause abdominal pain, diarrhea, loss of appetite, metallic taste, nausea, vomiting, lassitude, insomnia, muscle weakness, joint and muscle pain, irritability, headache and dizziness. Red blood cells may be damaged resulting in anemia. Gastritis and injury to the kidneys, liver, male gonads, and central nervous system may also occur.  
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.  
Lead and lead compounds may cause abdominal pain, diarrhea, loss of appetite, metallic taste, nausea, vomiting, lassitude, insomnia, muscle weakness, joint and muscle pain, irritability, headache and dizziness. Red blood cells may be damaged resulting in anemia. Gastritis and injury to the kidneys, liver, male gonads, and central nervous system may also occur.  
**Subacute to chronic toxicity:** No effects known.  
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information

**Toxicity**  
**Aquatic toxicity:** No further relevant information available.  
**Persistence and degradability** No further relevant information available.  
**Bioaccumulative potential** No further relevant information available.  
**Mobility in soil** No further relevant information available.  
**Ecotoxical effects:**  
**Remark:** Very toxic for aquatic organisms  
**Additional ecological information:**  
**General notes:**  
Do not allow material to be released to the environment without proper governmental permits.  
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.  
May cause long lasting harmful effects to aquatic life.  
Avoid transfer into the environment.  
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

UN-Number DOT, IMDG, IATA	UN3077
UN proper shipping name DOT IMDG, IATA	Environmentally hazardous substances, solid, n.o.s. (Lead(II) selenide) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead(II) selenide)

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USA

**Product name:** Lead(II) selenide

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**Transport hazard class(es)**

DOT, IMDG



Class  
Label  
Class  
Label  
IATA

9 Miscellaneous dangerous substances and articles.  
9  
9 (M7) Miscellaneous dangerous substances and articles  
9



Class  
Label

9 Miscellaneous dangerous substances and articles.  
9

**Packing group**  
DOT, IMDG, IATA

III

**Environmental hazards:**  
**Special marking (ADR):**  
**Special marking (IATA):**

Symbol (fish and tree)  
Symbol (fish and tree)

**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.

**Transport/Additional information:**

DOT  
**Marine Pollutant (DOT):**

No

**UN "Model Regulation":**

UN3077, Environmentally hazardous substances, solid, n.o.s. (Lead(II) selenide),  
9, III

**15 Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)  
**Hazard pictograms**



GHS06 GHS08

**Signal word** Danger  
**Hazard statements**

H300+H330 Fatal if swallowed or if inhaled.  
H360 May damage fertility or the unborn child.  
H373 May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P284 [In case of inadequate ventilation] wear respiratory protection.  
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...  
P320 Specific treatment is urgent (see on this label).  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
All components of this product are listed on the Canadian Domestic Substances List (DSL).  
This product contains a chemical known to the state of California to cause cancer and/or reproductive toxicity.

**SARA Section 313 (specific toxic chemical listings)**

12069-00-0 Lead(II) selenide

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer**

12069-00-0 Lead(II) selenide

**Prop 65 - Developmental toxicity** Substance is not listed.

**Prop 65 - Developmental toxicity, female** Substance is not listed.

**Prop 65 - Developmental toxicity, male** Substance is not listed.

**Information about limitation of use:**

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

**Other regulations, limitations and prohibitive regulations**

Refer to 29CFR1910.1025 for regulations concerning lead and lead compounds.  
Refer to 29CFR1910.1025 for regulations concerning lead and lead compounds.  
**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

Substance is not listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.

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

**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

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USA



Product name: Lead(II) selenide	
<div>Department issuing SDS: Global Marketing Department Date of preparation / last revision 11/24/2015 / - Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO: International Civil Aviation Organization ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society) HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent vPvB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) IARC: International Agency for Research on Cancer EPA: Environmental Protection Agency (USA)</div>	(Contd. of page 5) USA