



Chemtrec: (800) 424-9300  
Poison Center: (800) 562-8236  
Revision Date: January 8<sup>th</sup>, 2019

**SAFETY DATA SHEET**

Identity: Lead Selenide

Formula: PbSe

**SECTION I - GENERAL INFORMATION**

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

**SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION**

Molecular weight: 286.15

CAS #	OSHA PEL	ACGIH TLV	%
12069-00-0	.05 mg (Pb)/m3	.15 mg (Pb)/m3	0.0-100.0%

**SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS**

Physical States: Solid

Boiling Point: N/A

Vapor Pressure (vs. air or mmHg): N/A

Melting Point: 1065.00°C

Density: 8.10 g/cm<sup>3</sup> at 15.0°C

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

*Appearance and odor:* Gray powder and pieces, no odor

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA:**

*Method Used:* Unknown

*Explosive Limits:* LEL: N/A

UEL: N/A

*Extinguishing Media:* Use suitable extinguishing media for surrounding materials and type of fire

*Special Fire Fighting Procedures:*

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

*Unusual Fire and Explosion Hazards:*

When heated to decomposition, lead selenite may emit toxic fumes of selenium and lead oxide fumes. May be a moderate fire hazard as dust or in a presence of moisture.



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## SECTION V - REACTIVITY DATA

*Stability:* Stable

*Conditions to Avoid (instability):* N/A

*Incompatibility:* Strong oxidizing agents and moisture

*Hazardous Decomposition or Byproducts:* Fumes of selenium and lead oxides

*Hazardous Polymerization:* Will not occur

*Conditions to avoid (hazardous polymerization):* Lad, lead oxides, selenium, and selenium oxides

## SECTION VI - HEALTH HAZARD DATA

Routes of entry:      Inhalation? Yes      Ingestion? Yes      Eyes? Yes      Skin? Yes      Other? No

To the best of our knowledge the chemical, physical and toxicological properties of lead selenide have not been thoroughly investigated and recorded.

Some lead compounds are experimental neoplastigens and tumorigens. Lead poisoning is one of the commonest of occupational diseases. The lead must be in such form, and so distributed, as to gain entrance into the body or tissues of the worker in measurable quantity, otherwise no exposure can be said to exist. Some lead compounds are carcinogens of the lungs and kidneys. Lead is a cumulative poison. Increasing amounts build up in the body and eventually reach a point where symptoms and disability occur. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Selenium compounds are poison by inhalation and intravenous routes. Some selenium compounds are experimental carcinogens. Long term exposure may be a cause of amyotrophic lateral sclerosis in humans, just as it may cause "blind staggers" in cattle. Elemental selenium has low acute systemic toxicity, but dust or fumes can cause serious irritation of the respiratory tract. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Excessive exposure can affect blood, nervous and digestive systems. The synthesis of hemoglobin is inhibited and results in anemia. If left untreated, neuromuscular dysfunction, possible paralysis, and encephalopathy can result.

Additional symptoms of overexposure include joint and muscle pain, weakness of the extensor muscles, headaches, dizziness, abdominal pain, diarrhea, constipation, nausea, vomiting, blue line on the gums, insomnia, and metallic taste. High body levels produce increased cerebrospinal pressure, brain damage, and stupor leading to coma and often death. Acute selenium poisoning produces central nervous system effects, which include nervousness, convulsions, and drowsiness.

Other signs of intoxication can include skin eruptions, lassitude, gastrointestinal distress, teeth that are discolored or decayed, odorous breath, and partial loss of hair, and nails. Chronic exposure by inhalation can produce symptoms that include pallor, coating of the tongue, anemia, irritation of the mucosa, lumbar pain, liver and spleen damage as well as any of the other previously mentioned symptoms.

### Signs and Symptoms of Overexposure:

*Inhalation:* May cause headaches, chills, fever, shortness of breath, insomnia, depression, dryness of the mouth, nausea, vomiting, diarrhea, metallic taste, loss of appetite, irritability and muscle pain. Chronic lead toxicity may cause: loss of appetite, vomiting, renal malfunction, hyperactivity, mild anemia, liver cirrhosis, brain damage and general intellectual and psychological impairment.

*Ingestion:* May cause constipation and abdominal pain, colic, tremors, nausea, vomiting, diarrhea, metallic taste, loss of appetite, irritability and muscle pain. Acute lead toxicity may cause: lassitude, vomiting, loss of appetite uncoordinated body movements, convulsions, stupor, coma and death. Chronic lead toxicity may cause: loss of appetite, vomiting, renal malfunction, hyperactivity, mild anemia, liver cirrhosis, brain damage and general



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intellectual and psychological impairment. Chronic tellurium toxicity may cause: digestive disturbance, growth suppression, somnolence and garlic breathe.

*Skin:* May cause redness, itching, inflammation and burning.

*Eye:* May cause redness, itching, inflammation, burning and watering.

*Health Hazard (Acute and Chronic):*

*Inhalation:*

Acute: DANGER-POISON. May cause irritation to the upper respiratory system, insomnia, headache, chill, fever, dyspnea, bronchitis, dryness of the mouth and a metallic taste.

Chronic: May cause garlic like odor to the breath, pallor, nervousness, depression and chronic lead toxicity. May be toxic to the central and peripheral nervous system affecting the cerebellum, spinal cord, motor and sensory nerves.

*Ingestion:*

Acute: DANGER-POISON. May cause constipation and abdominal pain, colic, tremors, nausea, vomiting, diarrhea, metallic taste, loss of appetite, irritability and muscle pain. May cause acute lead toxicity.

Chronic: May cause anemia, gingival lead line, paralysis in the wrist and permanent neurological injury. May cause chronic lead toxicity. May cause nephritis, scarring and shrinking of the kidney tissue.

*Skin:*

Acute: May cause irritation.

Chronic: May cause dermatitis.

*Eyes:*

Acute: May cause irritation.

Chronic: May cause visual disturbances such as blurred vision.

*Target Organs:* Blood, kidneys, nerves and male, female reproductive system

*Carcinogenicity:* NTP? No IARC Monographs? No OSHA Regulated? No

*Medical Condition Generally aggravated by exposure:* Pre-existing lung and respiratory disorder

*Emergency and First Aid Procedures:*

*Inhalation:* Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention

*Ingestion:* Give 1-2 glasses of milk or water, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person

*Skin:* Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist

*Eye:* Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

<b>SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE</b>
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*Steps to be taken in case material is released or spilled:*

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

*Waste disposal method:*

Dispose of in accordance with state, local, and federal regulations.



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*Hazard Label Information:* None

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

### SECTION VIII - CONTROL MEASURES

*Protective Equipment Summary (Hazard Label Information):*

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

*Ventilation:*

Local Exhaust: To maintain concentration at low exposure levels.

Mechanical (General): Not recommended.

*Work/Hygienic/Maintenance Practices:*

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established