

**SELENIUM ARSENIC GERMANIUM
SAFETY DATA SHEET**

DATE OF LAST REVISION: 07/08/15

Section 1: Identification

Product Name: Selenium Arsenic Germanium

Company: Angstrom Sciences, Inc.
40 South Linden Street
Duquesne, PA 15110

For more information call: 412-469-8466
(Monday - Friday 9:00 AM -5:00 PM EST)

Section 2: HAZARD IDENTIFICATION

Signal Word: Danger



Hazard Statements: H301 + H331: Toxic if swallowed or if inhaled
H373: May cause damage to organs through prolonged or repeated exposure.

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.
P321: Specific treatment [see on this label]
P405: Store locked up
P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

HMIS Health Ratings (0-4):

Health: 3
Flammability: 1
Physical: 1

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Section 3: Composition/Information on Ingredients

Chemical characterization: Sem-imetalic Alloy

Additional Names: SAG

Selenium (Se):

CAS# Description: 7782-49-2

Percentage: 0-100 wt%

EC number: 231-957-4

Arsenic (As):

CAS# Description: 7440-38-2

Percentage: 0-100 wt%

EC number: 231-148-6

Germanium (Ge):

CAS# Description: 7440-56-4

Percentage: 0-100 wt%

EC number: 231-164-3

Section 4: FIRST AID MEASURES

General Treatment: Seek medical attention if symptoms persist.

Special Treatment: 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.

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: Seek medical attention.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing Media: No special restrictions - use suitable extinguishing agent for surrounding material and type of fire.

Flammability: Non-Flammable

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.

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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 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: 0.01 mg/m³ as As, inorganic, long-term value

Threshold Limit Value: 0.01 mg/m³ as As, long-term value

Biological Exposure Index: 35 mg/m³ as Arsenic in urine at end of workweek

Special Equipment: None

Respiratory Protection: Use a respirator with type P100 (USA) or P3 (EN143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protective Gloves: Nitrile rubber, NBR 0.11 mm thick

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

Form: Powder, Granules, Pellets, Sputtering target, Custom parts

Color: grey

Odor: Odorless

Water Solubility: Insoluble

Boiling Point: N/A

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Melting Point: N/A
Flash Point: N/A
Autoignition Temperature: N/A
Density: N/A
Molecular Weight: N/A

Section 10: STABILITY AND REACTIVITY

Reactivity: Reacts with Acids, Halogens, Oxidizing Agents
Chemical Stability: Stable under recommended storage conditions
Hazardous Decomposition Products: Metal oxide fume, Selenium dioxide (SeO₂), Arsenic oxides (As₂O_x)

Section 11: TOXICOLOGICAL INFORMATION

Potential Health Effects:
Eyes: Harmful

Skin: Irritant - toxin is not easily absorbed through skin.

Ingestion: Fatal

Inhalation: Fatal

Chronic: Acute arsenic poisoning from ingestion results in marked irritation of the stomach and intestines with nausea, vomiting and diarrhea. In severe cases, the vomitus and stools are bloody and the patient goes in to collapse and shock with weak, rapid pulse, cold sweats, coma, and death. Chronic arsenic poisoning may cause disturbances of the digestive system such as loss of appetite, cramps, nausea, constipation or diarrhea.

Tellurium is converted in the body to dimethyl telluride which imparts a garlic-like odor to the breath and sweat. Heavy exposure may result in headache, drowsiness, metallic taste, loss of appetite, nausea, tremors, convulsions, and respiratory arrest.

Signs & Symptoms: N/A
Aggravated Medical Conditions: N/A
Median Lethal Dose: N/A
Carcinogen: EPA-A, IARC-1, ACGIH-A1, NTP-K

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.

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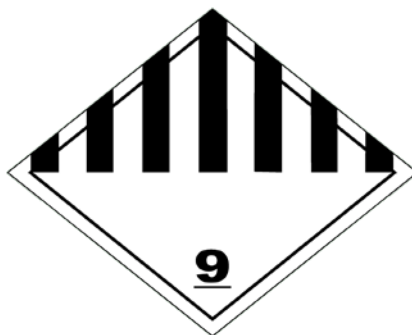
Do not allow material to be released to the environment without proper governmental permits.
Danger to drinking water if even extremely small quantities leak into the ground.

Section 13: DISPOSAL CONSIDERATIONS

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

Section 14: TRANSPORT INFORMATION

Hazardous: Target or large ingot



Hazard Class: 9 Miscellaneous dangerous substances and articles
Packing Group: III
UN Number: UN3077
Proper Shipping Name: Environmentally hazardous substances, solid, n.o.s. (Germanium Arsenic Selenide)

Hazardous: All other forms:



Hazard Class: 6.1 Toxic substances
Packing Group: II

**SELENIUM ARSENIC GERMANIUM
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UN Number: UN1557

Proper Shipping Name: Arsenic compounds, solid, inorganic, n.o.s. (Germanium Arsenic Selenide)

Section 15: REGULATORY INFORMATION

Sec 302 Extremely Hazardous: No

Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: Components

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.