



LTS Research Laboratories, Inc.
Safety Data Sheet
Germanium Antimony Selenium Tellurium

1. Product and Company Identification

Trade Name: Germanium Antimony Selenium Tellurium
Chemical Formula: $\text{Ge}_2\text{Sb}_2\text{Se}_4\text{Te}$
Recommended Use: Scientific research and development

Manufacturer/Supplier: LTS Research Laboratories, Inc.
Street: 2001 Oaks Pkwy
City: Belmont
State: North Carolina
Zip Code: 28012
Country: USA
Tel #: 855-587-2436 / 855-lts-chem

24-Hour Emergency Contact: 800-424-9300 (US & Canada)
+1-703-527-3887 (International)

2. Hazards Identification

Signal Word: Danger



Hazard Statements: H301: Toxic if swallowed
H315: Causes skin irritation
H319: Causes serious eye irritation
H331: Toxic if inhaled
H335: May cause respiratory irritation
H373: May cause damage to organs through prolonged or repeated Exposure

Precautionary Statements: P210: Keep away from heat/sparks/open flames/hot surfaces – No Smoking
P240: Ground/bond container and receiving equipment
P241: Use explosion-proof electrical/ventilating/light/ equipment
P260: Do not breathe dust/fume/gas/mist/vapours/spray
P264: Wash thoroughly after handling
P280: Wear protective gloves/protective clothing/eye protection/face protection
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
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P312: Call a POISON CENTER or doctor/physician if you feel unwell
P370+P378: In case of fire: Use dry sand, dry chemical or alcohol resistant foam for extinction
P405: Store locked up
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):	Powder	Bulk
Health:	2	1
Flammability:	1	0
Physical:	3	0

3. Composition

Chemical Family: Alloy
 Additional Names: GSST

Germanium (Ge):
 Percentage: 0-100 wt%
 CAS #: 7440-56-4
 EC #: 231-164-3

Antimony (Sb):
 Percentage: 0-100 wt%
 CAS #: 7440-36-0
 EC #: 231-146-5

Selenium (Se):
 Percentage: 0-100 wt%
 CAS #: 7782-49-2
 EC #: 231-957-4

Tellurium (Te):
 Percentage: 0-100 wt%
 CAS #: 13494-80-9
 EC #: 236-813-4



4. First Aid Procedures

General Treatment: Seek medical attention if symptoms persist.
 Special Treatment: None
 Important Symptoms: N/A

Inhalation: Remove victim to fresh air. Supply oxygen if breathing is difficult. Seek medical attention.

Ingestion: Rinse mouth with water. Do not induce vomiting. Seek medical attention.

Skin: Wash affected area with mild soap and water. Remove any contaminated clothing. Seek medical attention.

Eyes: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

5. Firefighting Measures

Flammability: Non-flammable, except as powder

Extinguishing Media: No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. Do not use water for metal fires – use CO₂, sand, extinguishing powder.

Spec. 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.

6. Accidental Release Measures

If Material Is Released/Spilled:	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.

7. Handling and Storage

Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	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.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	0.1 mg/m ³ as Te, long-term value 0.5 mg/m ³ as Sb, long-term value 0.2 mg/m ³ as Se, long-term value
Threshold Limit Value:	0.1 mg/m ³ as Te, long-term value 0.5 mg/m ³ as Sb, long-term value 0.2 mg/m ³ as Se, long-term value
Special Equipment: Respiratory Protection:	None 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
Protective Gloves:	Nitrile rubber, NBR 0.11mm thick Check gloves prior to each use
Eye Protection:	Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	N/A
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	N/A
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	832.24 g/mol

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Acids, Bases, Halogens, Interhalogens, Oxidizing agents
Incompatible Conditions:	Heat, flames, sparks and direct sunlight
Hazardous Decomposition Products:	Germanium Oxide, Antimony oxides, Metal oxide fume, Hydrogen Telluride, Selenium dioxide

11. Toxicological Information

Potential Health Effects:	
Eyes:	Cause serious eye damage
Skin:	Causes skin irritation
Ingestion:	Toxic if swallowed
Inhalation:	Toxic if inhaled
Chronic:	N/A
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	100 mg/kg Sb for rat by mouth 83 mg/kg Te for rat by mouth 6700 mg/kg Se for rat by mouth
Carcinogen:	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. EPA-D: Not classifiable as to human carcinogenicity; inadequate human and animal evidence of carcinogenicity or no data are available.

12. Ecological Information

Aquatic Toxicity:	High
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	Toxic to aquatic life 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. Avoid transfer into the environment.

13. Disposal Considerations

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

14. Transportation Data

Hazardous: Hazardous as powder only



Hazard Class: 6.1 Toxic substances
Packing Group: III
UN Number: UN 3288
Proper Shipping Name: Toxic Solid, inorganic, n.o.s (Germanium Antimony Selenium Tellurium)

15. Regulatory Information

Sec 302 Extremely Hazardous: No
Sec 304 Reportable Quantities: N/A
Sec 313 Toxic Chemicals: Yes

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.

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