



XI'AN FUNCTION MATERIAL GROUP CO., LTD  
Safety Data Sheet

Germanium Antimony Telluride

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1. Product and Company Identification

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Trade Name:	Germanium Antimony Telluride
Chemical Formula:	Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub>
Recommended Use:	Scientific research and development
Manufacturer/Supplier:	XI'AN FUNCTION MATERIAL GROUP CO., LTD
Street:	No. 69, Gazelle Valley, High-Tech Zone
City:	XI'AN
State:	Shaanxi
Zip Code:	710077
Country:	China
Tel #:	+86-29-88993870/+86-13519132051

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2. Hazards Identification

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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
- P261: Avoid breathing dust/fume/vapor
- 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

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### 3. Composition

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Chemical Family: N/A  
 Additional Names: N/A

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

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

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### 4. First Aid Procedures

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General Treatment: Seek medical attention if symptoms persist. Move away from dangerous area. Remove any contaminated clothing. Supply oxygen if breathing is difficult.

Special Treatment: Immediately remove any clothing soiled by the product. In case of irregular breathing or respiratory arrest provide artificial respiration.

Important Symptoms: None

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

Ingestion: Give one to two glasses of water. Never induce vomiting or give anything by mouth to an unconscious person. Seek immediate medical attention.

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

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

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### 5. Firefighting Measures

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Flammability: Flammable as powder

Extinguishing Media: Do not use water for metal fires – use dry sand, dry chemical or alcohol-resistant foam for extinction

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.

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### 6. Accidental Release Measures

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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. Remove all ignition sources. Evacuate personnel away from dangerous areas. Isolate runoff to prevent environmental pollution.

Environmental Precautions:

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### 7. Handling and Storage

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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.

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### 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits: 0.1 mg/m<sup>3</sup> as Te, long-term value  
0.5 mg/m<sup>3</sup> as Sb, long-term value  
Threshold Limit Value: 0.1 mg/m<sup>3</sup> as Te, long-term value  
0.5 mg/m<sup>3</sup> as Sb, long-term value  
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 0.11mm thick.  
Penetration time of glove material: 480 minutes  
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.

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### 9. Physical and Chemical Characteristics

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Color: N/A  
Form: Powder, Granules, Pellets, Sputtering target, Custom parts  
Odor: Odorless  
Water Solubility: Insoluble  
Boiling Point: N/A  
Melting Point: N/A  
Flash Point: N/A  
Autoignition Temperature: N/A  
Density: N/A  
Molecular weight: 1026.8 g/mol

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### 10. Reactivity

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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

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## 11. Toxicological Information

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### Potential Health Effects:

Eyes:	Cause serious eye damage
Skin:	Causes skin irritation
Ingestion:	Toxic if swallowed
Inhalation:	Toxic if inhaled
Chronic:	May cause damage to organs through prolonged or repeated exposure

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

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.

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## 12. Ecological Information

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Aquatic Toxicity:	High
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	Toxic to aquatic life

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## 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

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## 14. Transportation Data

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Hazardous: Hazardous as powder only



Hazard Class:	6.1 Toxic substances
Packing Group:	III
UN Number:	UN 3284
Proper Shipping Name:	Tellurium Compound, n.o.s. (Germanium Antimony Telluride)

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### 15. Regulatory Information

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

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### 16. Other Information

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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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