



XI'AN FUNCTION MATERIAL GROUP CO., LTD  
Material Safety Data Sheet  
Germanium Arsenic Selenium Telluride

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### 1. Product and Company Identification

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Trade Name: Arsenic selenium telluride  
Chemical Formula: Ge-As-Se-Te

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  
H330 Toxic if inhaled

Precautionary Statements: P261 Avoid breathing dust/fume  
P301+P310 If swallowed: immediately call a poison center or doctor  
P304+P340 If inhaled: remove person to fresh air  
P405 Store locked up  
P501 Dispose of according to local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health: 3  
Flammability: 1  
Reactivity: 1

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### 3. Composition

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Chemical Family: Semimetallic alloy  
Additional Names: Germanium arsenic selenium tellurium alloy, GAST

Germanium (Ge):  
Percentage: 0-100 wt%

Arsenic (As):  
Percentage: 0-100 wt%

Selenium (Se):  
Percentage: 0-100 wt%

Tellurium (Te):  
Percentage: 0-100 wt%

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#### 4. First Aid Procedures

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General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Ingestion:	Give one to two glasses of water and induce vomiting. Never induce vomiting or give anything by mouth to an unconscious person.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for ten minutes.

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#### 5. Fire and Explosion Hazards Data

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Flammability:	Non-flammable
Extinguishing Media:	No special restrictions - use suitable extinguishing agent for surrounding material and type of fire.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

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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.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

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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.
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 TLV.

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#### 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits:	0.01 mg/m <sup>3</sup> as As, long-term
Threshold Limit Value:	0.01 mg/m <sup>3</sup> as As, long-term
Biological Exposure Index:	35 mg/m <sup>3</sup> 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 0.11mm thick.
Eye Protection:	Safety glasses or goggles
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	Grey
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:	N/A

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## 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	None
Incompatible Conditions:	None
Haz. Decomposition Products:	Metal oxide fume

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## 11. Toxicological Information

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### 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 into 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.

Routes of Entry: Inhalation and ingestion.

Target Organs: N/A

Signs & Symptoms of Exposure: N/A

Medical Conditions

Aggravated by Exposure: N/A

Median Lethal Dose: N/A

Carcinogen: Confirmed carcinogen  
EPA-A, IARC-1, ACGIH-A1, NTP-K

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## 12. Ecological Information

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Aquatic Toxicity: High  
Persistent Bioaccumulation Toxicity: No  
Very Persistent, Very Bioaccumulative: No  
Notes: Very toxic for aquatic organism.  
May cause long lasting harmful effect on aquatic life.  
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.

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## 13. Disposal Considerations


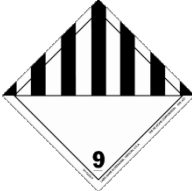
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Dispose of in accordance with local, state and federal regulations.

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## 14. Transportation Data

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Hazardous: Target or large ingot:  
  
Hazard Class: 9 Miscellaneous hazardous substances  
Packing Group: II  
UN Number: UN3077  
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Germanium arsenic selenium tellurium)

Hazardous: All other forms:  
  
Hazard Class: 6.1 Toxic substances  
Packing Group: II  
UN Number: UN1557  
Proper Shipping Name: Arsenic compounds, solid, inorganic, n.o.s. (Germanium arsenic selenium 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: Components

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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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