



XI'AN FUNCTION MATERIAL GROUP CO., LTD

Safety Data Sheet

Germanium Antimony Telluride

1. Product and Company Identification

Trade Name: Germanium Antimony Telluride
Chemical Formula: Ge₂Sb₂Te₅

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

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
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

3. Composition

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

4. First Aid Procedures

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.

5. Firefighting Measures

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.

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
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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:

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/m³ as Te, long-term value
0.5 mg/m³ as Sb, long-term value
Threshold Limit Value: 0.1 mg/m³ as Te, long-term value
0.5 mg/m³ 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.

9. Physical and Chemical Characteristics

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

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

11. Toxicological Information

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.

12. Ecological Information

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

13. Disposal Considerations

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.

14. Transportation Data

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)

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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