



XI'AN FUNCTION MATERIAL GROUP CO., LTD  
Material Safety Data Sheet  
Copper Gallium Selenide

---

### 1. Product and Company Identification

---

Trade Name: Copper gallium selenide  
Chemical Formula:  $\text{CuGaSe}_2$

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: H300+H330: Fatal 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  
P284: Wear respiratory protection  
P320: Specific treatment is urgent (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: 2  
Flammability: 0  
Physical: 1

---

### 3. Composition

---

Chemical Family: Semimetallic alloy  
Additional Names: None

Copper gallium selenide ( $\text{CuGaSe}_2$ ):  
Percentage: 100 wt%  
CAS #: 12018-83-6  
EC #: N/A

---

#### 4. First Aid Procedures

---

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:	Seek medical attention
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

---

#### 5. Firefighting Measures

---

Flammability:	Non-flammable
Extinguishing Media:	Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
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 <sup>3</sup> as Cu, long-term value
Threshold Limit Value:	0.2 mg/m <sup>3</sup> as Se, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

---

## 9. Physical and Chemical Characteristics

---

Color	Steel 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:	291.21 g/mol

---

## 10. Reactivity

---

Stability:	Stable under recommended storage conditions
Reacts With:	Oxidizing agents
Incompatible Conditions:	None
Hazardous Decomposition Products:	Metal oxide fume, Selenium dioxide, Hydrogen selenide

---

## 11. Toxicological Information

---

Potential Health Effects:	
Eyes:	Causes irritating effect
Skin:	Irritant to skin and mucous membranes
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	Selenium may cause amyotrophic lateral sclerosis, bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss. Copper compounds may be irritating to the skin, eyes and respiratory tract. They may cause metal fume fever, hemolysis of the red blood cells and injury to the liver, lungs, kidneys, and pancreas. Ingestion may also cause vomiting, gastric pain, dizziness, anemia, cramps, convulsions, shock, coma, and death.
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	N/A
Carcinogen:	IARC-3: Not classifiable as to carcinogenicity to humans.

---

## 12. Ecological Information

---

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. Do not allow product to reach any water sources. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Avoid transfer into the environment

---

### 13. Disposal Considerations

---

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

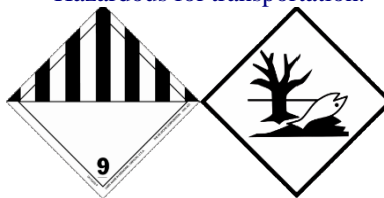
---

### 14. Transportation Data

---

Hazardous:

Hazardous for transportation.



Hazard Class:  
Packing Group:  
UN Number:  
Proper Shipping Name:

9 Miscellaneous hazardous substances  
III  
UN3077  
Environmentally hazardous substances, solid, n.o.s. (Copper gallium selenide)

---

### 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.

Document Last Revised: 06/25/2016