



XI'AN FUNCTION MATERIAL GROUP CO., LTD
Safety Data Sheet
Copper Indium Gallium Selenium

1. Product and Company Identification

Trade Name:
Chemical Formula: Copper indium gallium selenium CuInGaSe
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

2. Hazards Identification

Signal Word:

Danger



Hazard Statements:

H228: Flammable solid
H319 Causes serious eye irritation
H335: May cause respiratory irritation
H290: May be corrosive to metals
H301+H331: Toxic if swallowed or if inhaled

Precautionary Statements:

P261 Avoid breathing dust/fume/vapor
P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
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
P370+P378: In case of fire: Use CO₂, powder or water spray for extinction
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
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:	2	0
Physical:	1	0

3. Composition

Chemical Family:	Alloy
Additional Names:	None
Copper (Cu):	
Percentage:	0-100 wt%
CAS #:	7440-50-8
EC #:	231-159-6
Indium (In):	
Percentage:	0-100 wt%
CAS #:	7440-74-6
EC #:	231-180-0
Gallium (Ga):	
Percentage:	0-100 wt%
CAS #:	7440-55-3
EC #:	231-163-8
Selenium (Se):	
Percentage:	0-100 wt%
CAS #:	7782-49-2
EC #:	231-957-4

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:	Flammable
Extinguishing Media:	Do not use water for metal fires – use CO ₂ , 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 In, long-term value
Threshold Limit Value:	0.1 mg/m ³ as In, 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.
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	Silver grey
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	29.8-1083 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	327.05 g/mol

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Acids, Halogens, Aluminum/aluminum alloys, Magnesium/magnesium alloys, Oxidizing agents
Incompatible Conditions:	protect against electrostatic charges
Hazardous Decomposition Products:	Metal oxide fume, Indium oxide, Copper oxides

11. Toxicological Information

Potential Health Effects:

Eyes:	Causes serious eye damage
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A

Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A

Median Lethal Dose:	6700 mg/kg for rat by mouth >5000 mg/kg for mouse by mouth
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Carcinogen:	IARC-3: Not classifiable as to carcinogenicity to humans. The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance. EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available
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12. Ecological Information

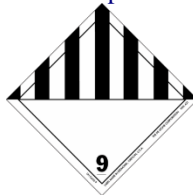
Aquatic Toxicity:	High
Persistent Bioaccumulation Toxicity:	No
Very Persistent, Very Bioaccumulative:	No
Notes:	Toxic for aquatic organism. May cause long lasting harmful effect on aquatic life Do not allow material to be released to the environment without proper governmental permits. Also poisonous for fish and plankton in water bodies Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. 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.
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Hazard Class:	9 Miscellaneous dangerous substances and articles
Packing Group:	III
UN Number:	UN3077
Proper Shipping Name:	Environmentally hazardous substances, solid, n.o.s. (Copper indium gallium selenium)

15. Regulatory Information

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

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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