

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Copper Zinc Tin Sulfide

Product Number: All applicable American Elements product codes, e.g. CUZN-SNS-02 , CUZN-SNS-03 , CUZN-SNS-04 , CUZN-SNS-05

CAS #: 12158-89-3

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:

+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Signal Word: Warning



Hazard Statements:

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation

Precautionary Statements:

P261 Avoid breathing dust/fume/vapor
P305+P351 If in eyes: Rinse cautiously with water for several minutes.
P304+P340 If inhaled: Remove person to fresh air

HMIS

Health Ratings (0-4):

Health: 1

Flammability: 1

Physical: 1

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family: Ceramic
Additional Names: CZTS
Copper zinc tin sulfide($\text{Cu}_2\text{ZnSnS}_4$):
Percentage: 100 wt%
CAS#: 12158-89-3
EC #: NA

SECTION 4. FIRST AID MEASURES

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 several minutes.
Remove contact lenses if present and easy to do. Continue rinsing

SECTION 5. FIREFIGHTING MEASURES

Flammability:
Non-flammable
Flash Point:
N/A
Autoignition Temperature:
N/A
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.

SECTION 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.

SECTION 7. HANDLING AND STORAGE

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 threshold limit.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Permissible Exposure Limits:

1.0 mg/m³ as Cu dust

Threshold Limit Value:

1.0 mg/m³ as Cu dust

Special Equipment:

None

Respiratory Protection:

Dust Respirator, NIOSH approved

Protective Gloves:

Rubber gloves

Eye Protection:

Safety glasses or goggles

Body Protection:

Protective work clothing. Wear close-toed shoes and long sleeves/pants.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Color: Dark greenish grey

Form: Powder, Granules, Pellets, Sputtering target, Custom parts

Odor: Odorless

Water Solubility: Insoluble

Boiling Point: N/A

Melting Point: 990°C

Density: 4.56 g/cc

Molecular weight: 439.471 g/mol

SECTION 10. STABILITY AND REACTIVITY

Stability:

Stable under recommended storage conditions

Reacts With:

Oxidizing agents, Acids
Incompatible Conditions:
None
Hazardous Decomposition
Products:
Metal oxide fume, Hydrogen sulfide, Sulfur dioxide

SECTION 11. TOXICOLOGICAL INFORMATION

Potential Health Effects:
Eyes: May cause serious irritation
Skin: May cause irritation
Ingestion: May cause irritation
Inhalation: May cause irritation
Chronic:
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. Copper solutions may cause sensitization reactions.
Signs & Symptoms: N/A
Aggravated Medical Conditions: N/A
Median Lethal Dose: >2 mg/kg as ZnS for rat by mouth
Carcinogen: N/A

SECTION 12. ECOLOGICAL INFORMATION

Ecological data is not available.

SECTION 13. DISPOSAL CONSIDERATIONS

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

SECTION 14. TRANSPORT INFORMATION

Hazardous:
Not hazardous for transportation.
Hazard Class:
N/A
Packing Group:
N/A
UN Number:
N/A
Proper Shipping Name:
N/A

SECTION 15. REGULATORY INFORMATION

Sec 302 Extremely Hazardous:

No

Sec 304 Reportable Quantities:

N/A

Sec 313 Toxic Chemicals:

Yes

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.