

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Name:** Copper Zinc Alloy Nanoparticles / Nanopowder

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

**CAS #:** 53801-63-1

**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

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## 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)

GHS02 Flame

Flam. Sol. 2 H228 Flammable solid.

Hazards not otherwise classified No data available

GHS label elements, including precautionary statements

Hazard pictograms



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## SECTION

**GHS02**

**Signal word Warning**

**Hazard statements**

**H228 Flammable solid.**

**Precautionary statements**

**P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.**

**P280** Wear protective gloves/protective clothing/eye protection/face protection.  
**P240** Ground/bond container and receiving equipment.  
**P241** Use explosion-proof electrical/ventilating/lighting/equipment.  
**P370+P378** In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.  
**WHMIS classification**  
**B4 - Flammable solid**  
**Classification system**  
**HMIS ratings (scale 0-4)**  
**(Hazardous Materials Identification System)**  
**HEALTH**  
**FIRE**  
**REACTIVITY**  
**1**  
**2**  
**1**  
**Health (acute effects) = 1**  
**Flammability = 2**  
**Physical Hazard = 1**  
**Other hazards**  
**Results of PBT and vPvB assessment**  
**PBT: N/A**  
**vPvB: N/A**

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### **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substances**  
**CAS No. / Substance Name:**  
**53801-63-1 Zinc-copper couple**

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### **SECTION 4. FIRST AID MEASURES**

**Description of first aid measures**  
**If inhaled:**  
**Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.**  
**Seek immediate medical advice.**  
**In case of skin contact:**  
**Immediately wash with soap and water; rinse thoroughly.**  
**Seek immediate medical advice.**  
**In case of eye contact:**  
**Rinse opened eye for several minutes under running water. Consult a physician.**  
**If swallowed:**  
**Seek medical treatment.**  
**Information for doctor**  
**Most important symptoms and effects, both acute and delayed:**  
**No data available**  
**Indication of any immediate medical attention and special treatment needed:**  
**No data available**

## **SECTION 5. FIREFIGHTING MEASURES**

### **Extinguishing media**

**Suitable extinguishing agents** Special powder for metal fires. Do not use water.

**For safety reasons unsuitable extinguishing agents** Water

**Special hazards arising from the substance or mixture**

**If this product is involved in a fire, the following can be released:**

Zinc oxide

Copper oxides

**Advice for firefighters**

**Protective equipment:**

**Wear self-contained respirator.**

**Wear fully protective impervious suit.**

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Use personal protective equipment. Keep unprotected persons away.**

**Ensure adequate ventilation**

**Keep away from ignition sources**

**Environmental precautions: Do not allow product to enter drains, sewage systems, or other water courses.**

**Methods and materials for containment and cleanup: Ensure adequate ventilation.**

**Prevention of secondary hazards: Keep away from ignition sources.**

**Reference to other sections**

**See Section 7 for information on safe handling**

**See Section 8 for information on personal protection equipment.**

**See Section 13 for disposal information.**

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## **SECTION 7. HANDLING AND STORAGE**

### **Handling**

**Precautions for safe handling**

**Handle under dry protective gas.**

**Keep container tightly sealed.**

**Ensure good ventilation at the workplace.**

**Information about protection against explosions and fires: Protect against electrostatic charges.**

**Conditions for safe storage, including any incompatibilities**

**Requirements to be met by storerooms and receptacles: Refrigerate**

**Information about storage in one common storage facility:**

**Protect from heat.**

**Store away from water/moisture.**

**Do not store together with acids.**

**Store away from oxidizing agents.**

**Further information about storage conditions:**

**Store under dry inert gas.**

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This product is moisture sensitive.  
Keep container tightly sealed.  
Protect from humidity and water.  
Refrigerate  
Specific end use(s) No data available

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:  
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:  
None.

Additional Occupational Exposure Limit Values for related materials or possible hazards during processing:

7440-50-8 Copper

PEL (USA) Long-term value: 1\* 0.1\*\* mg/m<sup>3</sup>  
as Cu \*dusts and mists \*\*fume

REL (USA) Long-term value: 1\* 0.1\*\* mg/m<sup>3</sup>  
as Cu \*dusts and mists \*\*fume

TLV (USA) Long-term value: 1\* 0.2\*\* mg/m<sup>3</sup>  
\*dusts and mists; \*\*fume; as Cu

EL (Canada) Long-term value: 1\* 0.2\*\* mg/m<sup>3</sup>  
\*dusts and mists; \*\*fume

EV (Canada) Long-term value: 0.2\* 1\*\* mg/m<sup>3</sup>  
as copper, \*fume; \*\*dust and mists

Additional information: No data

Exposure controls

Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if airpurifying

respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:

Impervious gloves

Inspect gloves prior to use.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Penetration time of glove material (in minutes) No data available

Eye protection: Safety glasses

38.0.2

Body protection: Protective work clothing.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Powder or solid in various forms

Color: Brown to dark gray

Odor: Odorless

Odor threshold: No data available.

pH: N/A

Melting point/Melting range: 419-420 °C (786-788 °F)

Boiling point/Boiling range: No data available

Sublimation temperature / start: No data available

Flammability (solid, gas) Highly flammable.

Ignition temperature: No data available

Decomposition temperature: No data available

Autoignition: No data available.

Danger of explosion: No data available.

Explosion limits:

Lower: No data available

Upper: No data available

Vapor pressure: N/A

Density: No data available

Relative density No data available.

Vapor density N/A

Evaporation rate N/A

Solubility in / Miscibility with

Water: Insoluble

Partition coefficient (n-octanol/water): No data available.

Viscosity:

Dynamic: N/A

Kinematic: N/A

Other information No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity No data available

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions Reacts with strong oxidizing agents

Conditions to avoid No data available

Incompatible materials:

Acids

Water/moisture

Oxidizing agents

Heat

Hazardous decomposition products:

Zinc oxide

## **SECTION 11. TOXICOLOGICAL INFORMATION**

### **Information on toxicological effects**

**Acute toxicity: No effects known.**

**LD/LC50 values that are relevant for classification: No data**

**Skin irritation or corrosion: May cause irritation**

**Eye irritation or corrosion: May cause irritation**

**Sensitization: No sensitizing effects known.**

**Germ cell mutagenicity: No effects known.**

### **Carcinogenicity:**

**EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.**

**EPA-I: Data are inadequate for an assessment of human carcinogenic potential.**

**EPA-II: Inadequate information to assess carcinogenic potential.**

**Reproductive toxicity: No effects known.**

**Specific target organ system toxicity - repeated exposure: No effects known.**

**Specific target organ system toxicity - single exposure: No effects known.**

**Aspiration hazard: No effects known.**

**Subacute to chronic toxicity: No effects known.**

**Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.**

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## **SECTION 12. ECOLOGICAL INFORMATION**

### **Toxicity**

**Aquatic toxicity: No data available**

**Persistence and degradability No data available**

**Bioaccumulative potential No data available**

**Mobility in soil No data available**

**Additional ecological information: Avoid transfer into the environment.**

**Results of PBT and vPvB assessment**

**PBT: N/A**

**vPvB: N/A**

**Other adverse effects No data available**

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

### **Waste treatment methods**

**Recommendation Consult official regulations to ensure proper disposal.**

### **Uncleaned packagings:**

**Recommendation: Disposal must be made according to official regulations.**

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## **SECTION 14. TRANSPORT INFORMATION**

**UN-Number**

**DOT, IMDG, IATA UN3089**

**UN proper shipping name**

**DOT Metal powders, flammable, n.o.s. (zinc copper alloy)**

**IMDG, IATA METAL POWDER, FLAMMABLE, N.O.S. (zinc copper alloy)**

**Transport hazard class(es)**

**DOT**

**Class 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.**

**Label 4.1**

**Class 4.1 (F3) Flammable solids, self-reactive substances and solid desensitised explosives**

**Label 4.1**

**IMDG, IATA**

**Class 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.**

**Label 4.1**

**Packing group**

**DOT, IMDG, IATA III**

**Environmental hazards: N/A**

**Special precautions for user Warning: Flammable solids, self-reactive substances and solid desensitised explosives**

**EMS Number: F-G,S-G**

**Segregation groups Heavy metals and their salts (including their organometallic compounds), powdered metals**

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code N/A**

**Transport/Additional information:**

**DOT**

**Marine Pollutant (DOT): No**

**UN "Model Regulation": UN3089, Metal powders, flammable, n.o.s. (zinc copper alloy), 4.1, III**

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## **SECTION 15. REGULATORY INFORMATION**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**GHS label elements, including precautionary statements**

**Hazard pictograms**

**GHS02**

**Signal word Warning**

**Hazard statements**

**H228 Flammable solid.**

**Precautionary statements**

**P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.**

**P280 Wear protective gloves/protective clothing/eye protection/face protection.**

**P240 Ground/bond container and receiving equipment.**

**P241 Use explosion-proof electrical/ventilating/lighting/equipment.**

**P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.**

**National regulations**

**This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted**

**to research and development only. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA.**

**This**

**product must not be used for commercial purposes or in formulations for commercial purposes.**

**This product is not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).**

**SARA Section 313 (specific toxic chemical listings)**

**53801-63-1 Zinc-copper couple**

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer Substance is not listed.**

**Prop 65 - Developmental toxicity Substance is not listed.**

**Prop 65 - Developmental toxicity, female Substance is not listed.**

**Prop 65 - Developmental toxicity, male Substance is not listed.**

**Information about limitation of use: For use only by technically qualified individuals.**

**Other regulations, limitations and prohibitive regulations**

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.**

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

**Substance is not listed.**

**Annex XIV of the REACH Regulations (requiring Authorisation for use)**

**Substance is not listed.**

**Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**

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## **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 1997-2019 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.



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