



NANOMATERIALS & NANOFABRICATION LABORATORIES

MSDS SHEET

CuInS/ZnS Nanocrystals in Toluene

1. Product and Company Information

Product name: CuInS/ZnS core-shell nanocrystals

Catalog Number: CIS***

Manufacturer/Supplier:

NN-Labs LLC

PO Box 2168

Fayetteville, Arkansas 72702-2168

Telephone: 479-595-0662

Web Site: www.nn-labs.com

2. Composition/Information on Ingredients:

CAS No.: 19138-68-2(CuS) ; 12030-24-9(In₂S₃) ; 1314-98-3(ZnS)

Chemical Name: Copper Indium sulfide/Zinc sulfide

Chemical Formula: CuInS/ZnS

Typical Solvents (CAS No): Toluene (108-88-3), Hexanes (110-54-3), Chloroform (67-66-3),

Dichloromethane (75-09-2), Methanol (67-56-1), Water

3. Hazards identification

Emergency Overview: The health hazards of this product have not been fully tested and should be used with caution.

Exposure to skin, eyes, and respiratory tract could cause irritation.

POTENTIAL HEALTH EFFECTS

Inhalation: Not available Skin Contact: Not available

Ingestion: Not available Eye Contact: Not available

4. First aid measures

Skin Contact: Wash the skin thoroughly with soap and water and seek medical advice.

Eye contact: If eye contact occurs, rinse eye thoroughly and seek medical advice

Inhalation: If inhaled, supply fresh air or respirator and seek medical advice.

Ingestion: If swallowed, seek medical attention immediately

5. Fire fighting measures

Suitable extinguishing agents: Product is not flammable but the solvent is. Use fire fighting measures that suit the necessary solvent type.

Special Hazards: In case of fire, possible toxic metal fumes may be emitted.

Protective equipment: Wear self-contained respirator if necessary. Wear protective gloves.

6. Accidental release measures



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Person-related safety precautions: Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Measures for environmental protection: Do not allow material to be released to the environment without proper governmental permits.
Measures for cleaning/collecting: Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

7. Handling and storage

Information for safe handling: Keep container tightly sealed. Store at room temperature or in refrigerator (4-10 °C) under dark conditions within a tightly sealed container. Ensure good ventilation at the workplace. Store dissolved in solvent to prevent the formation of dust.
Information about protection against explosions and fires: Know the requirements of the necessary solvent. Product itself is not flammable
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Do not store together with acids.
Further information about storage conditions: Keep container tightly sealed. Store at room temperature or in refrigerator (4-10 °C) under dark conditions within a tightly sealed container. Ensure good ventilation at the workplace. Store dissolved in solvent to prevent the formation of dust.

8. Exposure controls and 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.
General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages, and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands: Impervious gloves, check gloves using UV light after use to determine level of contamination.
Eye protection: Safety glasses
Body protection: Protective work clothing.

9. Physical and chemical properties:

Form: Liquid form.
Color: Green to dark red
Odor: Odor dependent upon solvent used. Crystalline powder is odorless
Melting point/Melting range: The solvent is liquid and depends on the chemical composition of the solvent.
Boiling point/Boiling range: Determined by solvent used



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Sublimation temperature / start: Not determined
Flash point: Dependent upon solvent used
Ignition temperature: Dependent upon solvent used
Decomposition temperature: Not determined
Danger of explosion: Dependent upon solvent used. Crystalline powder does not present an explosion hazard.
Explosion limits: Currently unknown for nanocrystals
Vapor pressure: Dependent upon solvent used
Solubility in / Miscibility with Polar Solvents: Soluble when hydrophilic ligands are present
Solubility in / Miscibility with Non-Polar Solvents: Soluble when hydrophobic ligands are present

10. Stability and reactivity

Thermal decomposition / conditions to be avoided: Not determined, but temperature increases will affect the solvent used. Be aware of the necessary warnings for the specific solvent used.
Materials to be avoided: Acids, Bases, Oxidants, Reductants, and Ligands to the nanocrystals should be used with caution.
Dangerous reactions: No dangerous reactions known for nanocrystals but look up specifics for the solvent

11. Toxicological information

RTECS Number: Not disclosed
Toxicity: Not disclosed
Health Hazards: Refer to section 4
Carcinogenicity: No information is available

12. Ecological information:

No data available. See section 6

13. Disposal considerations

Dispose of in accordance with local, state, or national regulations.

14. Transport information

U.S. DOT Classification: Not a hazardous material for land or air transport.
Identification Number: Not applicable
Packing Group: Not applicable
Proper Shipping Name: Not applicable

15. Regulations

No data available for TSCA, EEC EINECS number, EEC risk statements, or other regulations.

16. Other information:



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Disclaimer: For R&D only. Not intended for food, drug, household, agricultural or cosmetic use. The above information is believed to be correct. NN-labs LLC shall not be held liable for any damage resulting from handling or contact with the above product.