

Iron Oxide Nanoparticles in Water SDS SHEET

Rev 12-12-17

1. PRODUCT IDENTIFICATION

Chemical Name: Iron Oxide (Fe₃O₄) nanoparticles in Water

Supplier: NNCrystal US Corporation 534 W Research Center Blvd., Ste 254 Fayetteville, AR 72701

Product Line: FEOW

Phone: 479.595.0662

Recommended Use: Research and development use only.

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture: Not a hazardous substance or mixture.

GHS Label elements, including precautionary statements: Not a hazardous substance or mixture.

Hazards not otherwise classified (HNOC) or not covered by GHS – none

3. COMPOSITION/INFORMATION ON INGREDIENT (EACH VIAL)

Chemical Name: Iron Oxide nanoparticles (Fe₃O₄) in Water

Chemical Formula: Fe₃O₄

| <u>Substance Name</u> | <u>CAS #</u> |
|-----------------------|--------------|
| Iron Oxide | 1317-61-9 |
| Water | 7732-18-5 |
| Stabilizing Ligands | |

4. FIRST AID MEASURES

Inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

Skin contact: Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

Eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

Ingestion: Seek immediate medical advice.

5. FIRE FIGHTING MEASURES

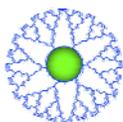
Suitable extinguishing agents: Product is not flammable.

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

6. ACCIDENTAL RELEASE MEASURES

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.



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Measures for cleaning/collecting: Dispose contaminated material as waste according to item 12. Ensure adequate ventilation.

7. HANDLING AND STORAGE

Store at room temperature in the dark.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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.

Eye protection: Safety glasses.

Body protection: Protective work clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid form – Crystalline powder, dissolved in a solvent.

Color: Black

Odor: Odor dependent upon solvent used. Crystalline powder is odorless.

Melting point/Melting range: ~1538°C to bulk melting point of Fe₃O₄ crystals. The solvent is liquid and depends on the chemical composition of the solvent.

Boiling point/Boiling range: Determined by solvent used.

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.

Density: 5.2 g/cm³ (crystal at 20 °C) for the nanocrystal powder if isolated.

Solubility in / Miscibility with Polar Solvents: Soluble when hydrophilic ligands are present.

10. STABILITY AND REACTIVITY

Reactivity: Stable under normal conditions and pressures

Stability: Stable at room temperature in closed containers under normal storage and handling conditions

11. TOXICOLOGICAL INFORMATION

Skin: Irritant to skin and mucous membranes.

Eye: Irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information: Danger through skin absorption is unknown.

Target Organs: Possibly Liver and Kidney

EPA-B1: Not Carcinogenic

IARC-1: Not Carcinogenic

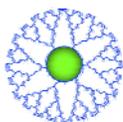
NTP-2: Not Carcinogenic

ACGIH A2: Not Carcinogenic

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Phone: 479.595.0662; Fax: 479.595.0570; E-mail: contact@nn-labs.com



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To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. However, preliminary studies suggest Iron Oxide nanocrystals are not toxic.

WARNING: Many of the toxic effects of Iron Oxide nanocrystals are still being researched and are currently unknown at this point. Use at own risk

12. ECOLOGICAL INFORMATION

Do not allow material to be released to the environment without proper governmental permits.

13. DISPOSAL CONSIDERATIONS

Consult local or national regulations for proper disposal.

14. TRANSPORT INFORMATION

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable

15. REGULATIONS

SARA 302 Components SARA

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right to Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components

| | | |
|--------------------|-------------------|--------------------------|
| Triiron tetraoxide | CAS-No. 1317-61-9 | Revision Date 2007-01-07 |
|--------------------|-------------------|--------------------------|

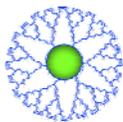
New Jersey Right to Know Components

| | | |
|-------------------------------------|-------------------|--------------------------|
| Triiron tetraoxide | CAS-No. 1317-61-9 | Revision Date 2007-01-07 |
| Polyethylene glycol (PEG) ligands – | | |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION



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HMIS Rating

Health hazard: 0

Chronic Health Hazard: *

Flammability: 0

Physical Hazard: 0

NFPA Rating

Health hazard: 0

Fire Hazard: 0

Reactivity Hazard: 0

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