**Safety Data Sheet (SDS)**

Version 2 Reviewed on 1.1.2024

**1. Chemical and Company Identification**

Product Name: Iron Oxide Nanoparticles in water

Product Use: Laboratory chemical – R&D use only

Manufacturer/Supplier: Cytodiagnostics Inc., 5867 South Garnett Road, Tulsa, Oklahoma 74146 USA

Phone: (866) 344-3954

Web: www.cytodiagnostics-us.com

Information and Support: customer_service-us@cytodiagnostics.com

**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 or not covered by GHS:** None.

**3. Composition/Information on Ingredients**

**This product contains:** Iron Oxide Nanoparticles ($Fe_3O_4$) in water

**Chemical Formula:** $Fe_3O_4$

**Components:**

**Component 1**: Iron Oxide, CAS# 1317-61-9

**Component 2**: Water, CAS# 7732-18-5

**Component 3:** Stabilizing ligands

**4. First Aid Measures**

**In case of skin contact**: In case of contact with skin, immediately remove contaminated clothing and wash extensively with soap and water and seek medical advice if symptoms occur.

**In case of ingestion**: If swallowed and person is conscious wash mouth with water, seek medical advice immediately.

**In case of eye contact**: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**If case of inhalation:** In case of accident by inhalation, remove to fresh air. If breathing becomes difficult seek medical advice. If not breathing, give artificial respiration.

**5. Fire Fighting Measures**

**Suitable extinguishing media:**

Product is not flammable.

**Special protective equipment and precautions for fire-fighters:**

Wear self-contained breathing apparatus if necessary. Wear protective gloves.

**6. Accidental Release Measures**

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

Use personal protective equipment. Avoid aerosols or dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**Methods and materials for containment and cleaning up**:

Dispose of in accordance to government regulations.

Do not allow product to enter drains or the environment. For disposal see section 13.

**7. Handling and Storage**

**Precautions for safe handling:**

Impervious gloves, safety glasses and protective work clothing should be worn.

**Conditions for safe storage:**

Store at room temperature in the dark.

**8. Exposure Controls/Personal Protection**

**General protective and hygienic measures:** The standard precautionary measures for handling any chemical 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 respiratory 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 $Fe_3O_4$ crystals. The solvent is liquid and melting point 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:** Not determined

**Vapor pressure:** Dependent upon solvent used

**Density:** 5.2 g/cm$^3$ (crystal at 20 °C) for the nanocrystal powder if isolated

**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**

**Reactivity:** Stable under normal temperature and pressure.

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

**11. Toxicological Information**

**Acute toxicity:** No data available

**Skin:** Irritant to skin and mucous membranes.

**Eyes:** 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

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 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 into the environment without proper governmental permits.

**13. Disposal Considerations**

**Disposal**: Consult a licensed waste disposal specialist for proper destruction. Observe all local, state and federal regulations.

**14. Transport Information**

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

**Identification:** Not applicable

**Special provisions for transport:** Not applicable

**15. Regulatory Information**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the safety data sheet contains all of the information required by those regulations.

**SARA 302 Components**

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 reporting levels established by SARA Title III, Section 313.

**Massachusetts Right to Know Components**

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

**Pennsylvania Right to Know Components**

Triiron tetraoxide CAS-No. 1317-61-9

**New Jersey Right to Know Components**

Triiron tetraoxide CAS-No. 1317-61-9

Polyethylene glycol (PEG) ligands

**California Prop. 65 Components**

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

**16. Other Information**

**HMIS Rating**

Health Hazard: 0

Chronic Health Hazard:

Flammability: 0

Physical Hazard: 0

**NFPA Rating**

Health Hazard: 0
Fire Hazard: 0
Reactivity Hazard: 0

This product is for laboratory research purposes, not for diagnostic or therapeutic use in humans or animals.
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. Users should make independent decisions regarding completeness of the information based on all sources available Cytodiagnostics Inc. shall not be held liable for any damage resulting from handling or contact with the above product.

Revision Date: 1.1.2024