

SAFETY DATA SHEET

[SECTION 1]: PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name : EMG 408 Ferrofluid
Chemical Name : Proprietary Product
Chemical Formula : Mixture
Chemical Family : Colloidal Dispersion
Relevant Identified Use : Domain Detection, Biomedical Research
Uses Advised Against : Continuous contact with human body

Manufacturer's Name : **Ferrotec (USA) Corporation**
Importers / Distributor : **Ferrotec (USA) Corporation, 33 Constitution Dr., Bedford, NH 03110, USA**
Responsible Party : **ferrofluid-safety@ferrotec.com**
Telephone Number : **(603) 472-6800**
Emergency Tel. Number : **+1 (800)424-9300 (CHEMTREC – US only)**
+1 (703)527-3887 (CHEMTREC – International)

Other safety information : **+81-479-73-6752 (FERROTEC CORP. – Japan)**

[SECTION 2]: HAZARD IDENTIFICATION

OSHA Hazards : N/A

Target Organs : N/A

GHS Classification : N/A

GHS Label Elements, including precautionary statements

Pictogram: N/A

Signal word: None

Hazard statement(s): None

Precautionary statement(s): None

Any hazards not otherwise classified or identified during classification process: N/A

% of mixture consisting of ingredient(s) of unknown toxicity: N/A

HMIS Classification

Health hazard: 1 (Mild skin irritation)

Chronic Health Hazard: 0

Flammability: 0

Physical hazards: 0

NFPA Rating**Health hazard:** 1 (mild irritant)**Fire:** 0**Reactivity Hazard:** 0**Potential Health Effects****Inhalation:** May cause slight irritation of airways**Skin:** May cause slight irritation of skin**Eyes:** May cause slight irritation of eye membranes**Ingestion:** May cause slight irritation of mucus membranes

[SECTION 3]: COMPOSITION / INGREDIENT INFORMATION**Synonyms:** N/A

The precise composition of this mixture is proprietary information.

A more complete disclosure will be provided to a physician or a nurse in the event of a medical emergency. All components are registered in Chemical Abstracts Service (CAS).

Composition		Proportion % (by volume)	Exposure Limit	Toxicity Data
A	Magnetite (Fe ₃ O ₄) Particles	1.2	N/A	N/A
B	Water Soluble Dispersant	~1.4	N/A	N/A
C	Deionized Water	~97.4	N/A	N/A

[SECTION 4]: FIRST AID MEASURES**Necessary measures to be taken according to route(s) of exposure -****Ingestion:** Rinse mouth and give moderate amount of water to drink. This product is mildly alkaline (pH 7 - 9). Do not induce vomiting unless directed by medical professional. If vomiting does occur, the head should be kept lower than the torso so as to prevent aspiration into the lungs.**Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting eyelids. Check for and remove contact lenses. Get medical attention.**Skin Contact:** Flush contaminated skin with water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.**Inhalation:** Move person to fresh air. If person is not breathing call for emergency assistance (911 or other emergency number) then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.**Most important symptoms/effects****Acute:** N/A**Delayed:** N/A**Indication of immediate medical attention and special treatment needed, if necessary:** This product should not cause any significant health issues. Take appropriate action for signs of allergic or sensitivity reaction.

Notes to physicians: This product is mildly alkaline (pH 7-9). Treatment is symptomatic and supportive.

[SECTION 5]: FIRE FIGHTING MEASURES

Suitable extinguishing media: CO₂, foam, dry chemical, water spray

Unsuitable extinguishing media: N/A

Specific hazards arising from chemical combustion products: N/A

Special protective equipment and precautions for fire-fighters: N/A

[SECTION 6]: ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled:

Personal precautions: Remove clothing that may have become contaminated, wash skin thoroughly with soap and lots of water.

Environmental Precautions: Remove free liquid. Add absorbent (sand, earth, sawdust) to spill area. After removing absorbent, wash surface with soap and water to reduce possible slipping hazard.

Methods and materials for containment and cleanup: Consult federal state and local regulations applicable to disposal of wastewater.

[SECTION 7]: HANDLING AND STORAGE

Precautions for safe handling: Ordinary care in handling chemicals. Wash hands after handling.

Conditions for safe storage: Store in a cool, dry area.

Other precautions: Avoid contamination of food or tobacco products. Users should be aware that a very small percentage of the population may display unexpected allergic skin reactions to otherwise innocuous industrial chemicals and raw materials.

[SECTION 8]: EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA permissible exposure limit (PEL): Not established

ACIUGH Threshold Limit Value (TLV): Not established

Any other exposure limit used recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available: N/A

Appropriate engineering controls: N/A

Personal Protective Measures/Equipment:

Respiratory protection: None required unless smoke, mists or vapors are produced.

Ventilation: No special ventilation required.

Hand protection: Quality rubber or plastic gloves to prevent prolonged or repeated contact with skin, conform to EN 374 (EU)

Eye protection: Safety glasses if splash is possible, conform to EN 166 (EU)

Other protective equipment: Not necessary.

[SECTION 9]: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Black Fluid	Lower /Upper Flammability or Explosion Limits: N/A (water-based)
Odor: No odor	Vapor Pressure (mm Hg @ 20°C): 17.5
Odor Threshold: Not established	Vapor Density (Air=1): <1
pH: ~7	Density: 1.05 – 1.07 g/cc
Melting/Freezing Point: 0°C	Water Solubility: Complete
Boiling Point: 100°C	Partition Coefficient: n-octanol/water: not established
Flash Point: N/A (water-based)	Auto-ignition Temperature: N/A (water-based)
Evaporation Rate: Not established	Decomposition Temp.: Not established
Flammability (solid/gas): N/A (water-based)	Viscosity: <5 cP
Explosive properties: N/A (water-based)	Oxidizing properties: N/A (pH neutral)

[SECTION 10]: STABILITY AND REACTIVITY

Reactivity: N/A

Chemical stability: Stable at normal temperatures and pressures.

Possibility of hazardous reactions: Will not occur

Conditions to avoid (e.g. static discharge, shock or vibration): N/A

Incompatible materials: Strong oxidizing material, heat and flame.

Hazardous decomposition products: Burning may produce carbon monoxide and nitrogen gases.

[SECTION 11]: TOXICOLOGICAL INFORMATION**Acute Toxicity****Oral LD50**

LD50 Oral – Not established

Inhalation LC50

LC50 Inhalation – Not established

Dermal LD50

LD50 Dermal – Not established

Other information on acute toxicity

Skin corrosion/irritation: May cause rash on skin or eye and/or mucus membranes from prolonged contact.

Serious eye damage/eye irritation: Not established

Respiratory or skin sensitization: Not established

Germ cell mutagenicity: Not established

Carcinogenicity: This product DOES NOT contain any materials considered to be carcinogenic by any recognized sources. This product DOES NOT contain any materials listed in the NTP.

IARC: Not established

NTP: N/A

OSHA: N/A

Reproductive Toxicity: Not established

Teratogenicity: Not established

Specific target organ toxicity – single exposure (Globally Harmonized System): Not established

Specific target organ toxicity – repeated exposure (Globally Harmonized System): Not established

Aspiration hazard: As with any water-based preparation, aspiration is not recommended as may cause asphyxia and/or irritation.

Potential health effects

Inhalation: Slight irritation of mucus membranes

Ingestion: Slight irritation of mucus membranes

Skin: Slight irritation of skin

Eyes: Slight irritation of eye membranes

Signs and Symptoms of Exposure: N/A

Synergistic effects: Not Established

Additional Information: N/A

[SECTION 12]: ECOLOGICAL INFORMATION

Ecotoxicity (Aquatic and Terrestrial toxicity): No data

Persistence and biodegradability: No data

Bioaccumulation potential: No data

Mobility in soil: No data

Other adverse effects: No data

[SECTION 13]: DISPOSAL CONSIDERATION

Product: Comply with all federal, state and local regulations for disposal of wastewater.

Do not dump this product into sewers, on the ground or into any body of water.

Contaminated packaging: Dispose of as unused product.

[SECTION 14]: TRANSPORT INFORMATION

DOT (US)

Hazard class: N/A

UN No: N/A

Packing Group: N/A

Proper bulk shipping description: Not Regulated

Proper non-bulk shipping description: Not Regulated

Reportable Quantity: N/A

Marine Pollutant: N/A

Poison Inhalation Hazard: N/A

IMDG Hazard class: Not Regulated

UN No: N/A

Packing Group: N/A

Proper bulk shipping description: Not regulated

Proper non-bulk shipping description: Not regulated

ICAO shipping description: Not regulated

ADR/RID hazard class: Not regulated

IATA

Hazard class: N/A

UN No: N/A

Packing Group: N/A

Proper bulk shipping description: Not regulated

Proper non-bulk shipping description: Not regulated

[SECTION 15]: REGULATORY INFORMATION

OSHA Hazards: N/A

DSL Status: N/A

SARA 302 Components: N/A

SARA 313 Components: N/A

Composition	CAS No.	TSCA	EINECS	OSHA
A Magnetite (Fe ₃ O ₄)	1309-38-2	Registered	Registered	Registered
B Water Soluble Dispersant(s)	Proprietary	Registered	Registered	Registered
C Deionized Water	7732-18-5	Registered	Registered	Registered

These components do not contain any chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR part 372.

[SECTION 16]: OTHER INFORMATION

We believe the statements, technical information and recommendations contained herein to be reliable, but they are given without warranty or guarantee of any kind, express or implied, and we assume no responsibility for any loss, damage or expense, direct or consequential, arising from their use.

This material is not sold for use in products for which prolonged contact with skin or implantation into the human body is intended. We do not recommend this material as safe and effective for such uses and assume no liability for any such use.

RoHS compliance statement: This product meets the requirements of RoHS compliance.

REACH 2 Compliance Statement: This product is believed to meet the requirements of REACH 2 Compliance.

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