

SAFETY DATA SHEET

[SECTION 1]: PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name	: EMG 900 Series – EMG 900, 901, 905, 907, 909, 911 Ferrofluid
Chemical Name	: Proprietary Product
Chemical Formula	: Mixture
Chemical Family	: Colloidal Dispersion
Relevant Identified Use	: Domain Detection/Microfluidic Research
Uses Advised Against	: Loudspeaker Applications and any app. that requires long fluid life; Continued contact with skin or mucous membranes; inhalation or ingestion
Manufacturer's Name	: Ferrotec (USA) Corporation
Importers / Distributor	: Ferrotec (USA) Corporation, 33 Constitution Dr., Bedford, NH 03110, USA
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) +49-7022-9270-0 (FERROTEC GmbH – Germany)

[SECTION 2]: HAZARD IDENTIFICATION

Skin Corrosion / Irritation: Category 2

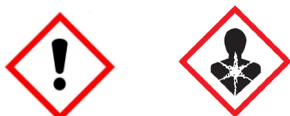
Severe Eye Damage / Irritation: Category 2

Target Organs : Not Established

Aspiration Toxicant: Category 1

GHS Label Elements, including precautionary statements -

Pictogram:



Signal word: Warning, **Danger**

Hazard statement(s):

H315 Cause skin irritation

H319 Cause serious eye irritation

H304 May be fatal if swallowed and enters airways

Precautionary statement(s):

-Prevention

P264 Wash thoroughly after handling

P273 Avoid release to the environment

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

-Response

P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

P302+P352 If on skin: Wash with plenty of soap and water

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if possible and easy to do. Continue rinsing.

P331: Do NOT induce vomiting

P332+P313: IF skin irritation occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage

P501: Dispose of contents and container in accordance with local regulations

Contains: DISTILLATES (PETROLEUM), HYDROTREATED LIGHT

Any hazards not otherwise classified or identified during classification process: GHS Class 4 Combustible

% of mixture consisting of ingredient(s) of unknown toxicity: Not Applicable (to be indicated henceforth as N/A)

HMIS Classification

Health hazard: 1

Chronic Health Hazard: N/A

Flammability: 1

Physical hazards: 0

NFPA Rating

Health hazard: 1

Fire: 1

Reactivity Hazard: 0

Potential Health Effects

Inhalation: Inhalation of oil mist or vapors at elevated temperatures may cause respiratory irritation.

Skin: Potential skin irritant

Eyes: Potential eye irritant

Ingestion: No significant health hazard, however aspiration during ingestion can cause severe respiratory effects, including death.

[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	Iron Oxide (magnetite)	3 - 15	No Data	No Data
B	Oleic Acid Dispersant	6 - 30	No Data	No Data
C	Distillates (Petroleum) Hydrotreated Light	55 - 91	No Data	No Data

[SECTION 4]: FIRST AID MEASURES

Necessary measures to be taken according to route(s) of exposure -

Ingestion: This material has minimal toxicity, but fluid aspirated into lungs during ingestion could cause severe pulmonary injury or death. Do not induce vomiting; seek immediate medical attention.

Eye contact: Check for contact lenses and remove. Flush with water for at least 15 minutes and consult a physician for treatment.

Skin Contact: Wash with soap and water.

Inhalation of smoke or mist: Move to fresh air and refer to a physician for treatment. If difficulty in breathing is observed, supply oxygen. If inhaled, there are possibilities of dizziness or asphyxiation without special symptoms.

Most important symptoms/effects

Acute: Not established

Delayed: Not established

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 contains a fatty acid dispersant and Distillates (Petroleum), Hydrotreated Light. If breathing has stopped, try artificial respiration.

[SECTION 5]: FIRE FIGHTING MEASURES

Suitable extinguishing media: CO₂, Foam, dry chemical, water spray (water spray may cause frothing)

Unsuitable extinguishing media: N/A

Specific hazards arising from chemical combustion products: Burning may produce carbon monoxide and nitrogen oxides. Vapor mixed with air at temperatures above flash point may be explosive. Vapor is heavier than air.

Special protective equipment and precautions for fire-fighters: Respirators, if smoke or vapor is present.

[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. If contamination of ground water is a concern, build a dike to contain spilled fluid, then clean as indicated. Prevent spilled fluid from entering sewers, water courses or low areas.

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

[SECTION 7]: HANDLING AND STORAGE

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

Conditions for safe storage: Keep in a cool, dark area. If large quantities are stored, ground the storage container to prevent static buildup.

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

ACGIH Threshold Limit Value (TLV): Not established

Any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available: No data

Appropriate engineering controls: Supply adequate ventilation

Personal Protective Measures/Equipment:

Respiratory protection: Not required unless smoke, mists or vapors are produced.

Ventilation: No special ventilation required.

Hand protection: Rubber or plastic gloves to prevent prolonged or repeated contact with skin, conforms to EN374 (EU).

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

Other protective equipment: Apron recommended but not required.

[SECTION 9]: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Black/brown fluid	Lower /Upper Explosion Limits: Not established
Odor: Mild, faint	Vapor Pressure (kPa @ 20°C): 0.1
Odor Threshold: Not established	Vapor Density (Air = 1): 6.4
pH: N/A	Density: 1.21 – 1.42 g/cc
Melting/Freezing Point (°C): Not established	Water Solubility: Insoluble
Boiling Point (°C): 223	Partition Coefficient: n-octanol/water: No data
Flash Point (°C): 95	Auto-ignition Temperature: 215°C
Evaporation Rate: < 0.01	Decomposition Temp.: No data
Flammability (solid/gas): No data	Viscosity: 6 - <12 cP
Explosion properties: No data available	Oxidizing properties: No data available

[SECTION 10]: STABILITY AND REACTIVITY

Reactivity: No data

Chemical stability: Stable under recommended storage conditions

Possibility of hazardous reactions: No data

Conditions to avoid (e.g. static discharge, shock or vibration): Will evaporate if left open to air. Avoid flame, spark and other ignition sources. Keep away from sewers and bodies of water.

Incompatible materials: Strong oxidizing agents

Hazardous decomposition products: In the event of fire, see section 5.

[SECTION 11]: TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral LD50

LD50 Oral – No data

Inhalation LC50

LC50 Inhalation – No data

Dermal LD50

LD50 Dermal – No data

Other information on acute toxicity

Skin corrosion/irritation: May cause skin irritation

Serious eye damage/eye irritation: May cause irritation to eyes and/or membranes

Respiratory or skin sensitization: May cause respiratory irritation,

Aspiration: May be fatal if swallowed and enters airways. Based on physico-chemical properties of the material

Germ cell mutagenicity: No data

Carcinogenicity: No data

IARC: No data

NTP: No data

OSHA: No data

Reproductive Toxicity: No data

Teratogenicity: No data

Specific target organ toxicity – single exposure (Globally Harmonized System): No data

Specific target organ toxicity – repeated exposure (Globally Harmonized System): No data

Potential health effects

Inhalation: Slight irritation
Ingestion: May cause death if aspirated during swallowing
Skin: Slight irritation
Eyes: Slight irritation

Signs and Symptoms of Exposure: Symptoms, if present, vary with individual. Watch for signs of allergic reaction, rash or respiratory distress.

Synergistic effects: No data

Additional Information: N/A

[SECTION 12]: ECOLOGICAL INFORMATION

Ecotoxicity (Aquatic and Terrestrial toxicity): Variable data, not expected to be harmful to aquatic organisms

Persistence and biodegradability: Expected to be inherently biodegradable

Bioaccumulative 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 waste oils. High temperature incineration.

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

Contaminated packaging: Dispose of as unused product, high temperature incineration.

[SECTION 14]: TRANSPORT INFORMATION

DOT (US)

Hazard class: Not Regulated for Land Transport

UN No: N/A

Packing Group: N/A

Proper bulk shipping description: Hydrocarbons, Liquid, N.O.S.

Proper non-bulk shipping description: Not restricted

Reportable Quantity: None

Marine Pollutant: No Reference

Poison Inhalation Hazard: N/A

IMDG

Hazard class: Not Regulated for Land Transport

UN No: N/A

Packing Group: N/A

Proper bulk shipping description: Not restricted

Proper non-bulk shipping description: Not restricted

ICAO shipping description: Not restricted
ADR/RID hazard class: Not restricted

IATA

Hazard class: Not Regulated for Air Transport
UN No: N/A
Packing Group: N/A
Proper bulk shipping description: Not restricted
Proper non-bulk shipping description: Not restricted

[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 Oleic Acid Dispersant	112-80-1	Registered	Registered	Registered
C Distillates (Petroleum) Hydrotreated Light	64742-47-8	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 material is believed to comply with RoHS standards.

REACH 2 Compliance Statement: This material is believed to comply with REACH standards.

This GHS Compliant SDS form was completed by the Ferrotec (USA) Ferrofluids Documentation Group.

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