

## MATERIAL SAFETY DATA SHEET

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### 【SECTION 1】 : PRODUCT AND COMPANY IDENTIFICATION

#### 1.1.Product Details

Product Name: **Ferrofluid**

Trade Name: **APG S series / Sn Series**

Chemical Name: **Proprietary product**

Chemical Formula: **Mixture**

Molar Mass: **N/A**

Chemical Family: **Colloidal mixture of iron oxide particles and synthetic ester**

Manufacturer's Code: **None**

#### 1.2.Manufacturer

Manufacturer's Name: **Ferrotec (USA) Corporation**

Importers / distributor's Name & Address: **33 Constitution Dr., Bedford, NH 03110**

Telephone Number: **(603) 472-6800**

Emergency Telephone number: **+1 (800) 424-9300 / CHEMTREC (US only )**

**+1 (703) 527-3887 / CHEMTREC (International)**

Other product safety information: **+81-479-73-6752 / Ferrotec Corp. Ferrofluid Dept. (JAPAN)**

**+49-7022-9270-0 / Ferrotec GmbH (Germany)**

### 【SECTION 2】 : COMPOSITION / INFORMATION ON INGREDIENTS

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.

Composition		Proportion %(by volume)	Exposure Limit	Toxicity Data
A	Iron Oxide	3 - 15	Not applicable	Not applicable
B	Oil Soluble Dispersant	7 - 50		
C	Synthetic Ester	41 - 92		
D	Oil Soluble Additives	1 - 2		

**【SECTION 3】 : HAZARDS IDENTIFICATION**

Most important hazards: **None**

Potential health effects

Ingestion: **No significant health hazards identified.**

Eye contact: **No significant health hazards identified.**

Skin contact: **No significant health hazards identified.**

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

**【SECTION 4】 : FIRST AID MEASURES**

Ingestion: **Consult a physician for treatment.**

Eye contact: **Flush with water and consult a physician for treatment.**

Skin contact: **Wash with soap and water.**

Inhalation: **Move affected person to fresh air and consult a physician for treatment.**

Notes to physician: **A more complete disclosure will be provided to a physician in the event of a medical emergency.**

**【SECTION 5】 : FIRE FIGHTING MEASURES**

Flammable properties

Flash point: **>200° C**

Flammable limits: **Not applicable**

Extinguishing Media: **CO2, Foam, Dry chemical**

Fire fighting instruction: **Use extinguishing media and remove combustibles.**

**【SECTION 6】 : ACCIDENTAL RELEASE MEASURES**

Steps to be taken in case material is released or spilled: **Remove free liquid. Add absorbent (sand, earth, sawdust) to spilled area. After removing absorbent, wash surface with soap and water to reduce possible slipping hazard.**

**【SECTION 7】 : HANDLING AND STORAGE**

Handling: **Ordinary care in handling chemical substances. Wash hands after handling.**

Storage: **Keep in a dark and a cool place.**

Other precautions: **Avoid contamination of 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 material.**

**【SECTION 8】 : EXPOSURE CONTROLS / PERSONAL PROTECTION**

- a. Exposure Limit: **No experience on over exposure.**
- b. Engineering measurement: **N/A**
- c. Personal protection
  - Respiratory protection: **Not required.**
  - Ventilation: **Not required.**
  - Hand protection: **Rubber or plastic gloves to prevent prolonged or repeated contacting with skin.**
  - Eye Protection: **Safety glasses.**
  - Other Protective Equipment: **Not required.**

**【SECTION 9】 : PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance: **Brown and / or black fluid**
- Odor: **Mild faint**
- Solubility: **Negligible**
- Boiling Point(°C): **> 150°C**
- Melting Point (°C): **N/A**
- Vapor Pressure (kPa at 20 °C): **Negligible**
- Percentage Volatiles: **Negligible**
- Evaporation Rate : **1.5 -2.8 \*10<sup>-7</sup> g/cm<sup>2</sup>sec @175°C**
- Vapor Density (Air=1): **> 1**
- Density (g/cm<sup>3</sup>) : **0.9 – 1.4**
- Flash point: **>200°C**
- Auto ignition temperature: **N/A**
- Flammable limit (%): **N/A**
- Other properties if applicable: **N/D**

**【SECTION 10】 : STABILITY AND REACTIVITY**

- Conditions to avoid: **Pyrolysis**
- Stability: **Stable at normal temperatures and pressure.**
- Material to avoid: **Strong oxidizing material, heat and flame.**
- Hazardous decomposition products: **Burning may produce carbon monoxide and nitrogen oxide.**
- Hazardous polymerization: **will not occur**

**【SECTION 11】 : TOXICOLOGICAL INFORMATION**

Toxicity Data: **No data**

Carcinogen city: **No data**

Reproductive Effect: **No data**

Effects of overexposure: **No data**

Chronic effects: **No data**

Target organs: **No data**

Medical Conditions Generally Aggravated by exposure: **No data**

**【SECTION 12】 : ECOLOGICAL INFORMATION**

Mobility: **No data**

Bioaccumulation: **No data**

Biodegradability: **No data**

Aquatic Toxicity: **No data**

**【SECTION 13】 : DISPOSAL CONSIDERATIONS**

Comply with all federal, state and local regulations.

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

**【SECTION 14】 : TRANSPORT INFORMATION**

This product is not regulated as United Nations Dangerous Goods.

DOT: Not Regulated

IATA: Not regulated

Hazard Class: N/A

UN No: N/A

Packing Group: N/A

**【SECTION 15】 : REGULATORY INFORMATION**

All components are in compliance with Pollutant Release and Transfer Register of Japan.

Composition		CAS No.	TSCA	EINECS	OSHA
A	Iron oxide	Trade secret	Registered	Registered	Not listed
B	Soluble dispersant	Trade secret	Registered	Registered	
C	Synthetic Ester	Trade secret	Registered	Registered	
D	Oil soluble additives	Trade secret	Registered	Registered	

This product does not contain any chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372.

**【SECTION 16】 : OTHER INFORMATION**

We believe the statements, technical information and recommendations contained herein are 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 in the human body is intended. We do not recommend this material as safe and effective for such uses and assumes no liability for any such use.