

## Material Safety Data Sheet (MSDS)

Prepared according to GB/T16483, GB/T17519

### Microencapsulation Foam (F500)

### Fire Extinguishing Agent

Revision Date: 21/02/2025      Version: A04

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## 1. Product and Company Identification

**Product Name:** Microencapsulation Foam (F500) Fire Extinguishing Agent

**Manufacturer/Supplier:** Luoyang Langchao Fire Technology Co., Ltd.

**Address:** NO.119, Longgu Road, Yibin High Tech Industrial Park, Luoyang, Henan Province, P.R. China

**Postal Code:** 471935

**Telephone:** 0379-69921230

**Email:** [info@firefightings.com](mailto:info@firefightings.com)

**Recommended Use:** Fire extinguishing agent for Class A, Class B, Class C, Parts of Class D, Class K, and lithium battery fires.

**Restrictions:** Not suitable for fires involving peroxides, metals, etc.

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## 2. Hazards Identification

### Emergency Overview:

- Appearance: Liquid
- Color: Brown

### GHS Hazard Classification:

Non-hazardous according to GB30000.2-29 series.

- Routes of Exposure: Inhalation, ingestion.
  - Health Hazards: Non-toxic.
  - Skin Contact: Non-irritating to the skin.
  - Eye Contact: May cause redness, tearing, blurred vision, and eye discomfort.
  - Inhalation or Ingestion: Acute toxicity tests for oral ingestion showed negative results.
  - Fire and Explosion Hazards: Non-flammable and non-explosive.
  - Environmental Hazards: Biodegradable, but care should be taken to avoid water contamination.
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**3. Composition/Information on Ingredients**

Substance/Mixture: Mixture

Hazardous Ingredients: None

Concentration: 1%, 3% and 6%

Major component

Component	CAS No.	Concentration (%, w/w)
Water	7732-18-5	36.8~62.9
EDTA	697742-30-6	0.1~0.2
Antifreeze / Ethylene Glycol	107-21-1	10 ~ 20
Polymer surfactant	85854-32-6	5~10
Polymer flame retardant	917-23-7	5~10
Foaming Agent / Alkyl Polyglucoside C8-10	161074-97-1	15 ~ 20
Fluorocarbon Surfactant (PFOS/PFOA-free)	A mixture containing amphoteric fluorinated surfactants (proprietary ingredients), 2-methyl-2,4-pentanediol (107-41-5), 2-(2-butoxyethoxy) ethanol (112-34-5, N-[carboxymethyl-N, N-dimethyl-3[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulfonyl] amino] propylammonium hydroxide (34455-29-3), cocoamidopropyl hydroxysulfonate (68139-30-0), etc.	2.0 ~ 3.0

**4. First Aid Measures**

- General Advice: Seek medical attention if symptoms persist or if concerned.
- Skin Contact: Remove contaminated clothing and rinse skin with plenty of soap and water. Wash clothing before reuse.
- Eye Contact: Rinse eyes with plenty of water or saline solution. Seek medical attention.
- Inhalation: Quickly evacuate the scene to a place with fresh air, keep the respiratory

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---



tract open, and seek medical attention if you have any symptoms. If the eyes come into contact with the product, immediately rinse the eyes with plenty of water for at least 15 minutes; if you are wearing contact lenses, remove the lenses if convenient, and seek medical attention immediately.

- Ingestion: Rinse mouth thoroughly with water. Seek medical attention if symptoms occur.
  - Advice for Rescuers: Use recommended personal protective equipment (PPE) (see Section 8).
  - Special Advice for Doctors: Symptomatic and supportive treatment.
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## 5. Firefighting Measures

- Fire Hazards: Non-flammable and non-explosive.
  - Extinguishing Media: Not applicable.
  - Hazardous Combustion Products: None.
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## 6. Accidental Release Measures

### Personal protection measures, protective equipment and emergency procedures:

Use personal protective equipment, and personnel quickly evacuate the leaked contaminated area to a safe area, and isolate it, strictly restrict personnel entry and exit, and follow the safety disposal recommendations (see Section 7) and personal protective equipment recommendations (see Section 8).

### Environmental protection measures:

Cut off the source of leakage as much as possible to prevent entry into restricted spaces such as sewers and flood drainage ditches. If safety can be ensured, measures can be taken to prevent further leakage or overflow, prevent large-scale spread, and retain and dispose of contaminated washing water. If a serious overflow cannot be contained, the local competent authorities should be notified.

### The collection and removal methods of leaked products and the disposal materials used:

For small leaks, the leaked liquid should be collected in a sealed container as much as

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Revision Date: 21/02/2025      Version: A04

---



possible, and the residual liquid should be absorbed with sand or other inert materials, and the collected leaked liquid should be diluted with water. For large leaks, a dike or pit should be built for collection. Recover with a pump or other suitable absorbent, transfer to a suitable container, and wait for later recycling or separate treatment. For the treatment of recovered liquid, relevant experts should be consulted to ensure compliance with local environmental regulations. If the water leaks, close the source of the leak if possible. Local or state regulations may apply to the release and disposal of such materials, as well as to the materials and items used in the cleanup of releases, and you will need to determine for yourself which regulations apply.

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## 7. Handling and Storage

### Technical measures:

Refer to engineering controls in the "Contact Control/Personal Protection Section".

### Local or general ventilation:

Use under ventilation conditions.

### Precautions for safe handling:

Do not contact skin or clothing, avoid inhalation, do not swallow, do not contact eyes, handle in accordance with good industrial hygiene and safety practices, keep containers sealed, and be careful to prevent handling precautions:

1. It can be used to extinguish initial fires involving metals such as lithium, sodium, potassium, magnesium, titanium and zinc. However, if the fire is too intense, it is recommended to use the special metal fire extinguishing powder.
2. It cannot be used to extinguish fires of compounds that can release oxygen or provide oxygen sources, such as peroxide fires.
3. It is not suitable for protecting fires caused by precision instruments and precision electrical equipment to avoid loss of accuracy of instruments and equipment.

It can also be used to extinguish gas-type fires, cooking oil fires in kitchens, lithium battery fires and initial fires involving combustible metals such as magnesium, titanium and zinc.

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---



4. It can be used to extinguish fires of non-polar solvent liquids and polar solvent liquids such as diesel, gasoline, alcohols, ethers, ketones, amines and esters.
  5. Operators should wear protective gloves and protective glasses when handling this product. If the product splashes, it can be rinsed with clean water to prevent the risk of slipping. For repeated contact with the skin, the product will remove the oil on the skin, thereby drying the skin. If the product enters the eyes, rinse immediately with plenty of water and seek medical treatment.
  6. Safe storage conditions: Store in a properly labeled container, keep it sealed, and store in accordance with specific national regulations. The fire extinguishing agent should be stored in a cool, ventilated, dry place, and should be sealed. The storage temperature range is between  $-5^{\circ}\text{C}$  and  $45^{\circ}\text{C}$ , and it should be kept away from incompatible substances. Wear labor protection equipment during operation.
  7. Prevent contact with prohibited substances: oxidants, reducing agents, and oily substances.
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## 8. Exposure Controls/Personal Protection

**Engineering Controls:** Ensure adequate ventilation, especially in enclosed areas.

**Personal Protective Equipment (PPE):**

- Eye Protection: Safety goggles or face shield.
  - Skin Protection: Wear protective clothing.
  - Respiratory Protection: Use a surgical mask.
  - Hand Protection: Chemical-resistant gloves.
  - Hygiene Measures: Provide eye wash stations and safety showers. Avoid eating, drinking, or smoking while handling the product.
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## 9. Physical and Chemical Properties

- Appearance: Liquid

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- Color: Brown
  - Specific Gravity: 1.00 ~ 1.20
  - PH: 6.0 ~ 9.5
  - Explosion limit: None
  - Water Solubility: Soluble
  - Explosive Limits: None
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## 10. Stability and Reactivity

- Reactivity: Not classified as reactive.
  - Stability: Stable under normal conditions.
  - Incompatible Materials: Oxidizers, reducers.
  - Forbidden compounds: oxidant, reducing agent.
  - Polymerization: Will not occur.
  - Decomposition Products: Carbon compounds, water.
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## 11. Toxicological Information

- Toxicity: Non-toxic
  - Irritation: May cause mild irritation to eyes, skin, respiratory, and digestive systems.
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## 12. Ecological Information

Biodegradability: Biodegradable.

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## 13. Disposal Considerations

### Disposal Methods:

Dispose of in accordance with local regulations. If this product becomes waste, it is a biodegradable substance, but like any substance, measures should be taken to prevent

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---



its concentrate from being discharged directly into groundwater, surface water or stormwater pipes. Foam made by large dilution or foam produced by fire fighting and exercises can be discharged in accordance with local biological sewage treatment system regulations.

**Disposal Precautions:** Note: For personal protection and environmental requirements for waste disposal, see Part 8.

**Contaminated packaging:** Empty containers should be sent to a licensed disposal site for recycling or disposal. If there are no other requirements, they should be treated as unused products.

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## 14. Transport Information

- Transport Classification: Non-hazardous goods.
  - Packaging: Sealed plastic drums.
  - Transport Precautions: No special requirements.
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## 15. Regulatory Information

Regulations: Complies with Chinese National Standard GB15308-2006 "Foam Fire Extinguishing Agents".

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## 16. Other Information

### References:

"Fire Equipment Handbook - Microencapsulation Foam (F500) Fire Extinguishing Agent".

### Prepared by:

Technical Department, Luoyang Langchao Fire Technology Co., Ltd.

### Other information:

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---



The Material Safety Data Sheet (MSDS) of this product provides information on human health and safety. This product should be used in accordance with the relevant product information of our company. Users should master the recommended safety protection knowledge and measures in advance, be familiar with this information, and it is best to formulate appropriate operating procedures and prepare training materials to ensure the personal safety of operators.

#### **Disclaimer:**

The information provided in this Safety Data Sheet (MSDS) is accurate on the date of publication. This information is only used as a guide for safe operation, use, storage, transportation, disposal and publication, and does not represent any type of guarantee or quality specification. Except as specified in the text, the information provided in this table is only related to the specific materials identified at the top of this MSDS. When the materials in the MSDS are mixed with any other materials or used in any process, the information in this table will be invalid. Material users should review the information and suggestions related to the operation, use, processing and storage methods required for use in specific environments, including the suitability assessment of the MSDS materials of the user's final product (if applicable).