

MPF - Multi Purpose Fluid / FER T1

Product Data Sheet

Advanced Fire Suppression for Modern Risks

**Engineered for Lithium Ion Battery,
Class A, Class B, and Class F Fires.**

MPF represents a new generation of firefighting fluid and is designed for the realities of today's fire landscape. Developed by LifeSafe Technologies, MPF combines rapid heat absorption, molecular level fuel encapsulation, and vapour suppression to deliver exceptional performance across a wide range of fire types.

Built around a carefully balanced blend of phosphates, inorganic salts, salts, and an environmentally compliant C6 surfactant, MPF offers a clean, highly effective alternative to traditional foams. Its cold mixed formulation in demineralised water ensures stability, consistency, and reliable performance in both domestic and professional applications.

Where MPF truly excels is in managing lithium ion battery failures. These events produce gas, intense heat, rapid thermal escalation, and a hazardous vapour cloud containing Hydrogen Fluoride, Carbon Dioxide, and volatile organic compounds. MPF is engineered not only to cool and suppress the fire, that prevents reignition, improving visibility and reducing overall hazard.



Technical Specification

Property	Value
Appearance	Clear to milky with a slight yellow to grey appearance
Fire Classes	34A / 55B / 75F
Lithium Ion Battery Suitability	Yes (rapid cooling and suppression to reduce thermal runaway)
Specific Gravity (20°C)	1.150 - 1.157
Ph (20°C)	7.7
Viscosity (20°C) <i>Approx twice as viscous as water</i>	Dynamic Viscosity 1.6 - 1.8 mPa.s Kinematic Viscosity 1.5 - 1.7 mm ² .s
Surface Tension	28 mN/m – lower surface tension offers high absorption capability compared with demin water
Sedimentation	At 20 degrees celsius the sedimentation is virtually zero – changes in temperature can alter this
Recommended Operating Range	0°C to 60°C
Storage Temperature Range	0°C to 50°C
Distance To Electrical Appliances	1,000V at 1 metre distance
EN3 Certifications	34A / 55B / 75F (available certificates: TÜV, BSI, UL)
Additional Standards	NTA 8133 (TUV)

Why MPF Performs Better

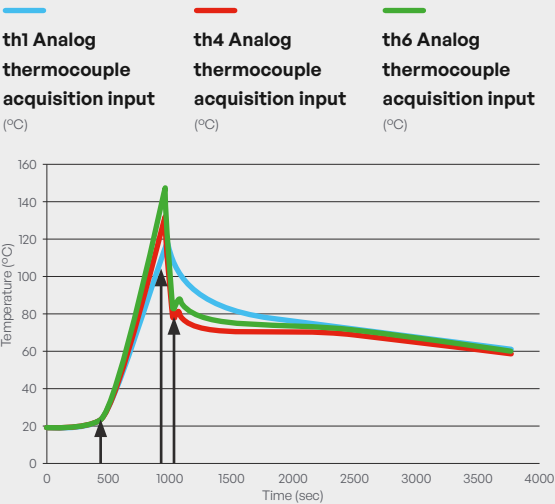
1. Rapid heat absorption.

The fluid has ingredients that are scientifically proven to create a three way endothermic reaction. MPF’s formulation absorbs heat at speed, driving down temperatures below ignition thresholds. This is particularly valuable in lithium ion events where runaway temperatures can exceed 1,000°C. Thermal imaging consistently shows a dramatic “thermal cliff” when MPF is applied, a clear indicator of its superior cooling and suppression capability compared to water alone. The fluid utilises latent heat evaporation, an endothermic decomposition which rapidly absorbs heat from it’s immediate environment and on a moleculier level it breaks the molecular bonds / structure of the fuel source itself.

2. Suppression and encapsulation.

As the MPF is applied to the fire and the heat is absorbed the components breakdown and produce both a mixture of inert gases to act as an internal suppression and a layer of phosphoric acid. This is effectively a charring layer creating a thermal shield preventing the thermal conductivity of the flames from reaching the fuel source. This dual action provides suppression / rapid cooling at the heart of the fire.

Test 1: Temperature Response to LifeSafe Fluid Application Following First Cell Venting



3. Neutralises harmful vapours, with vapour cloud knockdown.

MPF acts as an effective gas scrubber. As the fluid is applied, the alkaline buffer captures and dissolves water soluble toxic gases such as hydrogen fluoride (HF), significantly reducing the concentration of harmful vapours released into the environment. The construction of the fluid encapsulates the particulates & fine dust thus increasing their basic mass, which allows them to settle, falling out of air suspension. Forming a sediment. This significantly improves visibility.

Performance Testing

MPF has been independently tested to recognised international standards:

TÜV (Technical Inspection Association – www.tuv.com)

Class A, Class B, Class F, and Lithium-Ion Battery NTA test standard – EN3 – TUV 34A / 55B / 75F plus Dielectric Certificate No: 7191324118 – MEC23/01A-FA_CR3 – PASSED

NTA Test 8133 Lithium Ion Battery – TUV

Certificate No: 7191332727-MEC24-FA – PASSED

BSI (British Standards Institute – www.bsigroup.com)

Approved Diesel, Wood, Petrol, Vegetable cooking oil, Biodiesel, Bioethanol, Lithium Battery, Engine Oil and Textiles – Certificate No: 3714090 – PASSED

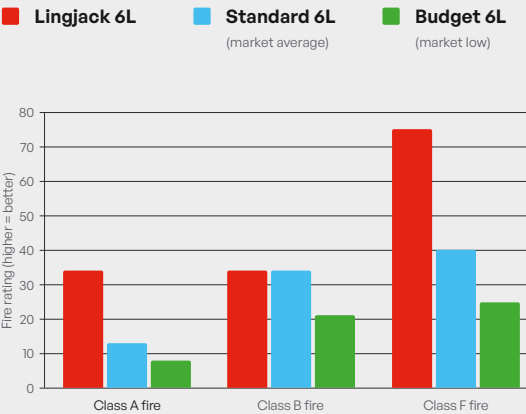
Apragaz – EN12496 (An independent, accredited Belgian inspection and certification body – apragaz.com)

Approved Class B Diesel, Class A Wood, Class B Petrol, Class F, Vegetable Cooking Oil, Class B Biodiesel, Class B Bioethanol, 14.8 volt Laptop Lithium Battery, 5W 30 Engine Oil Textiles and Dielectric test – Certificate No: EN 12496 – PASSED

UL (Underwriters Laboratories – www.ul.com)

Recognised component approved Class A and Class B fires. Certificate No: UL-US-2322315-0 – PASSED

Grouped bar chart comparing the Lingjack 6 litre cylinder against typical competitor 6 litre cyclinders across Class A, B, and F fire ratings.



Class A advantage +162% vs standard (13A)

Class F advantage +88% vs standard (40F)

Lithium-ion cert NTA8133 competitors: none

Competitor data sourced from Jactone, Firechief, FireChief PureSafe, HSE Store – all standard 6L water mist products.

*Class B: most 6L water mist extinguishers carry a 34B rating but this is not always certifiable under BS EN3 for water mist agents. Lingjack 34B is shown at medium (not maximum) rating.

Applications

MPF is designed for versatility and reliability across a wide range of risks.

Ideal for:

- ✓ Lithium ion battery fires
- ✓ Domestic and commercial fire risks
- ✓ Industrial facilities and workshops
- ✓ Transport, logistics, and warehousing
- ✓ EV charging areas and battery storage
- ✓ Class A, Class B and Class F fire scenarios

Compatible delivery systems.

MPF has been successfully tested with:

- ✓ EN3 approved cylinder at 12 bar with Rose nozzle
- ✓ UL approved Ammerex cylinder at 10 bar with water nozzle

Its low viscosity formulation ensures smooth flow and consistent performance across a range of pressure fed systems.

Material Compatibility

Corrosion testing conducted at DEKRA (2018 & 2023) confirms:

Material	Compatibility
Steel	Compatible
Bronze	Compatible
Rubber	Compatible - see list
Aluminium	Not Compatible

Any Aluminium vessels must have a sufficient rubber liner / coating.
Rubber seals we have tested:

Material	Result
Nitrile (NBR)	Excellent
EPDM	Excellent
Viton	Good (slight caution)
PTFE	Excellent
PVC	Excellent
Polypropylene	Excellent
Neoprene	Excellent

Storage & Shelf Life

Optimum storage temperature 20°C.
Shelf life 5 years – recertification is possible.

Recommended shelf life.

- 3 years in aerosols
- 5 years in canisters
- 5 years in cylinder based systems
- 5 years in 1000L IBC

Environmental Profile

MPF is formulated with environmental responsibility in mind.

- No PFAS added
- Non-toxic
- Designed for rapid biodegradation

PFAS Compliant

MPF FER T1 meets the PFAS restrictions set out in Commission Regulation (EU) 2025/1988, which limits firefighting foams to <1 mg/L PFAS (sum of all PFAS).

Independent laboratory testing confirms:

- Individual PFAS < 25 ppb
- Sum of targeted PFAS < 250 ppb
- Total Organic Fluorine (TOF) < 50 ppm

MPF contains no intentionally added PFAS, including fluorinated surfactants or fluorotelomer-based C6 chemistries. Any trace PFAS detected is at levels consistent with environmental background or analytical detection limits and remains far below the regulatory threshold.

Transport & Disposal

MPF’s phosphate/salt formulation is considered low environmental risk and is virtually 100% biodegradable.

- Standard disposal procedures apply
- Compatible with conventional wash down practices
- No special transport classification currently indicated
- See material safety data sheet

Certification details.

For EN3, dielectric, and NTA 8133:

- EN3 - TUV 34A / 55B / 75F plus Dielectric Certificate No: 7191324118 – MEC23/01A-FA_CR3 – PASSED
- NTA Test 8133 – Certificate No: 7191332727-MEC24-FA – PASSED
- EN3 Apragaz – Class B Diesel, Class A Wood, Class B Petrol, Class F Vegetable Cooking Oil, Class B Biodiesel, Class B Bioethanol, 14.8 volt Laptop Lithium Battery, 5W 30 Engine Oil Textiles and Dielectric test – Certificate No: EN 12496 – PASSED
- UL Compnent – Class A and Class B fires. Certificate No: UL-US-2322315-0 – PASSED

Safety & Regulatory Information

Storage & disposal.

Store in accordance with local/national regulations (typically cool and dry to prevent the salts from caking or the xanthan gum from degrading).

- Recommended operating range: 0°C to +60°C
- Tested to -10°C

Personal protective equipment.

(PPE): Recommend Nitrile gloves and safety glasses.

Handling precautions – Wash Hands / Gloves prolonged use of salt based products can cause drying of skin mild irritation.

- First aid measures – Eye bath
- SDS reference

Application rates.

Recommended application rate.

Class	L/m²
Class A (Solid Combustibles) Focus on deep penetration.	4
Class B (Non-Polar/Heptane) Standard NFPA/EN rate for F3 foams. Requires gentle application to build a seal.	8

- **Spray patterns** – On average a spray cone ranging between 30 to 60 degrees allows for maximum interference of salts while allowing a safe fire fighting distance for the operative*
- **Minimum effective dose** – the fluid is designed for lower dosage than water, water aditives and some foams.
- **Class A (Wood/Paper/Trash) L/min 1.5 | L/m² 2.0**
2L/m² ensures the salts soak in to prevent deep-seated glowing embers.
- **Class B (Hydrocarbons/Heptane) L/min 4.0 | L/m² 5.5**
This is the “critical application rate”. Below 4.0, the fire may overpower the fluid’s ability to suppress the surface vapours.

*only applicable for extinguishers

Polar solvents (Alcohols, Ketones, Esters).

Limitation: High Foam Destruction Rate Polar solvents are “water-miscible,” meaning they attract water and can rapidly destroy a standard foam blanket by pulling the water out of the bubble walls.

This product contains polymers that form a physical membrane between the fuel and the foam. In addition our high salt content provides a secondary layer of chemical suppression that F3 Surfactants on there own severely lack.

If you plunge this heavy, salt-laden liquid into a polar solvent, you will break the protective membrane, and the foam will disappear almost instantly

Class B: Hydrocarbons (Petrol, Diesel).

Limitation: High Density Sinking. Our mixture is significantly denser than water (kg/L) due to the salt load.

Environmental data.

The organic constituents are readily biodegradable (>90% in 28 days) and the inorganic constituents are naturally occurring minerals that dissociate and are assimilated into the environment as plant nutrients.

Summary of environmental metrics.

- Readily Biodegradable: Yes (Organic portion)
- PFAS – Compliant
- Nutrient Load: High (Contains Nitrogen and Phosphorus)
- Not greater than 25 ppb Individual Targeted PFAS
- Sum of Targeted PFAS not greater than 250 ppb
- Total Organic Fluorine not greater than 50 ppm
- VOC content – All components are zero % with exception of surfactant which is low / trace (Volitie Organic Compound)
- Eco tox classifications – The mixture is not classified as hazardous to the aquatic environment under CLP/GHS criteria, but “Nutrient Loading” is monitored
- The mixture is “Designed for Rapid Biodegradation” (less than 90% after 28 days), it is generally acceptable for biological treatment, provided the nutrient load is managed

Transport classification.

- CAS No: 1066-33-7 – Reach Regulation
- UN No: Not applicable

For detailed safety, handling, environmental, and regulatory information, please refer to the Manufacturers Safety Data Sheet (MSDS).