Engineered
FIRE PIPING

eFP-600 systems

Powered by Cold Fire

Triple fire suppression technology:
Wetting Agent - Encapsulator - Inhibitor

TESTED AND CERTIFIED SOLUTIONS FOR LITHIUM-ION BATTERY FIRES

TRIPLE SUPPRESSION TECHNOLOGY

ENHANCED TECHNOLOGY FOR LITHIUM-ION BATTERY FIRE SUPPRESSION

Cold Fire represents the **next generation** of additives for **fire control and suppression**, specifically designed for **lithium-ion battery fires**, leading the advancement in fire extinguishing technology.

This new additive is an environmentally friendly fire extinguishing agent, specially formulated to rapidly suppress and control fires by:

- Cooling hot surfaces.
- Preventing reignition.
- Encapsulating hydrocarbon gases.

Leader in fire suppression technology, it stands out for its exceptional ability to dissipate extreme heat from any material (metal, wood, rubber, etc.) upon contact.

Its high efficiency allows it to be discharged mixed with water at 3%, enhancing the water's cooling power to combat lithium-ion battery fires.

eFP-600 Li-Ion Battery Fire Suppression
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COLD FIRE

NEW GENERATION ADDITIVE

Its unique plant-based sap formula provides a cooling effect **10 times greater** than untreated water. Additionally, its rapid action is due to Cold Fire penetrating the fire **6 times faster** than plain water. As it infiltrates the surface, Cold Fire safely cools the area below its ignition point.

This additive is classified as next-generation due to its **Triple Suppression Technology**, functioning as a **Wetting Agent**, **Encapsulating Agent**, and **Inhibitor Agent**, achieving fire suppression through three distinct mechanisms: reducing the surface tension of water, encapsulating the heat source and fuel, and inhibiting the chain reaction.

PERFORMANCE AS A WETTING AGENT

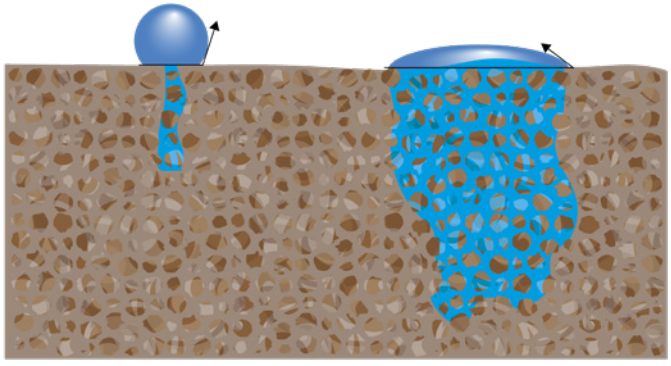
Cold Fire is a wetting agent, as it reduces the surface tension of water to one-third of its value in its pure state. This reduction provides several advantages over water without additives:

- It allows the additive to spread more quickly and penetrate surfaces and fire more effectively.
- It has a penetration factor 6 times greater than water without an additive.
- It produces smaller droplets, resulting in a significantly larger cooling surface area than water alone, allowing for greater contact with the fuel and superior absorption of thermal energy.

REDUCES THE SURFACE TENSION OF WATER AND INCREASES PENETRATION ON SURFACES

Water droplet without Cold Fire:
High surface tension.
Wide contact angle.

Water droplet with Cold Fire:
Low surface tension.
Reduced contact angle.

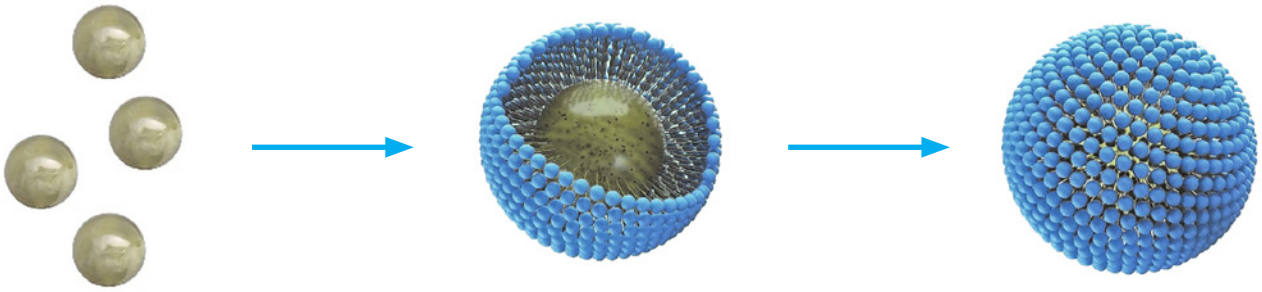


TRIPLE SUPPRESSION TECHNOLOGY

ENCAPSULATING TECHNOLOGY FOR FLAMMABLE LIQUIDS AND VAPORS

Cold Fire acts by forming **micelles** at molecular level. This property gives Cold Fire a dual **encapsulation** effect: it interacts with both the macroparticles of water and, at the molecular level, with the hydrocarbons of the fire. The micelles encapsulate the molecules of flammable liquids and vapors, transforming them into non-flammable substances. This property helps prevent the re-ignition potential, which is highly persistent in lithium-ion battery fires.

Additionally, the micelles also encapsulate the smoke produced during the fire, improving visibility and breathing of emergency responders if their intervention is required after the application of this additive.



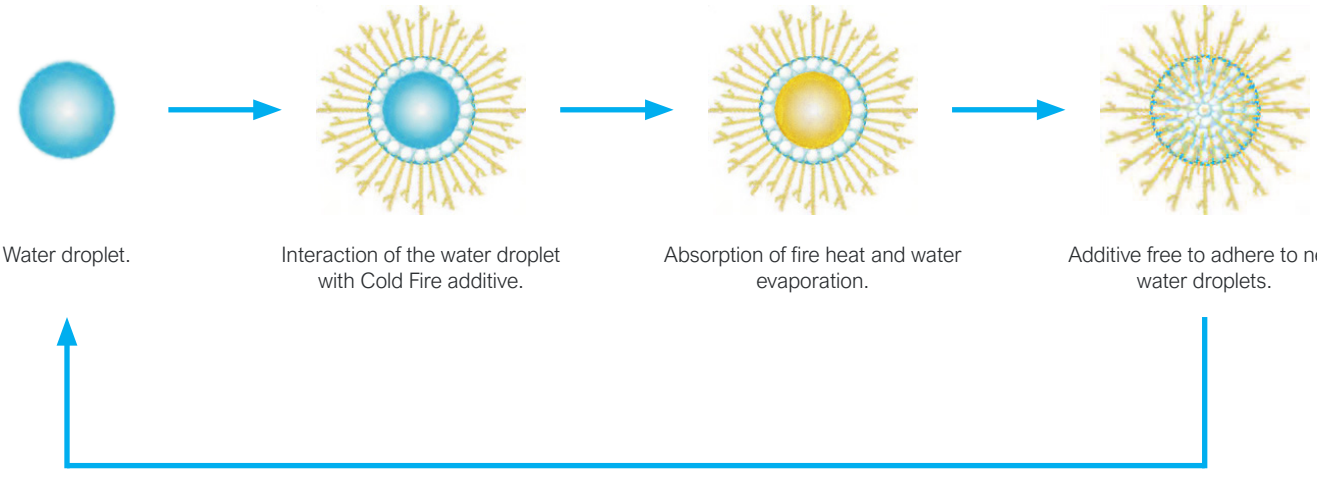
Hydrocarbon gases generated during the fire

Molecular interaction with Cold Fire

Complete encapsulation, micelle formed

The interaction of Cold Fire with water droplets results in the formation of reverse micelles, which act as efficient heat dissipators, creating a cyclical process that enables rapid temperature reduction of the fire:

- The Cold Fire molecules interact with water molecules through their hydrophilic head, forming urchin shaped molecules called reverse micelles.
- The Cold Fire molecules absorb a large amount of heat and transfer it to the interior of the water droplet, which immediately turns into vapor, thus consuming the energy from the fire.
- The released vapor collides with other adjacent water molecules, which then condense back into droplets.
- The newly formed droplets adhere to the Cold Fire, restarting the cycle.



Water droplet.

Interaction of the water droplet with Cold Fire additive.

Absorption of fire heat and water evaporation.

Additive free to adhere to new water droplets.

eFP-600
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ADDITIVE / CERTIFICATIONS

COMPLIES WITH NFPA 18 – WETTING AGENTS

Cold Fire complies with NFPA 18 in accordance with the performance and acceptance requirements for wetting agents. It ensures reliable performance and compatibility with fire protection systems. It is UL certified.

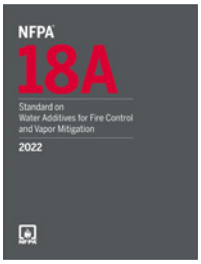
NFPA 18 – Standard on Wetting Agents

This standard establishes the requirements for the performance and use of wetting agents in relation to fire control and extinguishment. It is intended to guide fire fighters, authorities having jurisdiction (AHJs), and other interested parties in judging the acceptability and use of any wetting agent offered for such purposes.

LISTED
WETTING AGENT
2N75

COMPLIES WITH NFPA 18A

Standard on water additives for fire control and vapor mitigation.
7.2 Spill fire test. 7.3 Pool fire test. 7.7 Encapsulating agent.
Spherical stability test of micelles (fuel in liquid phase)



NFPA 18A – Standard on water additives for fire control and vapor mitigation

This standard establishes the minimum requirements for water additives used for the control and/or suppression of Class A and Class B fires and for the mitigation of flammable vapors. It is intended for those responsible for the purchasing, testing, listing, and use of such additives.

COLD FIRE IS 100% BIODEGRADABLE AND ENVIRONMENTALLY SAFE.

The encapsulating agent Cold Fire is not a foam, so it does not contain fluorinated ingredients like perfluorooctyl sulfonate (PFOS) or PFAS. This additive is environmentally safe and 100% biodegradable.

Cold Fire holds UL (Underwriters Laboratories) approvals for both the United States and Canada, and is also listed by the EPA (Environmental Protection Agency) in the USA.

ENVIRONMENTAL BENEFITS

- Environmentally safe
- Does not contain PFOS (perfluorooctane sulfonate)
- Does not contain PFOA (perfluorooctanoic acid)
- Listed in the EPA SNAP Program (USA)
- Non-corrosive
- Non-toxic
- Does not contain fluorides
- 100% biodegradable

CERTIFIED SYSTEMS

CERTIFIED BY APPLUS+ LABORATORIES

The systems with eFP-600 has been tested and certified by APPLUS, validating the corresponding Technical Suitability Document (DITE), equivalent to the CE marking for innovative products in sectors where no specific regulations exist, such as in Lithium Ion battery fires. According to the general provision of the Ministry of Industry in its Royal Decree 513/2017:

eFP-600 Li-Ion Battery Fire Suppression
Powered by Cold Fire

COLD FIRE

Applus laboratories

Royal Decree 513/2017 of May 22 (RIPCI), in its Article 5. Technical Suitability Document (DITE):
Products (equipment, systems, or components) for fire protection that are non-traditional or innovative and for which no standard exists, and where there is a risk, must justify compliance with the requirements established in this Regulation through a favorable technical evaluation of suitability for their intended use, carried out by authorized bodies designated by the competent public administrations.

TEST REPORT: EFP-600 FIRE EXTINGUISHER WITH COLD FIRE AGENT FOR LITHIUM BATTERY FIRES

Report number: 25/32302628 M1
Este informe anula y sustituye el informe 25/32302628 emitido con fecha 21 de marzo de 2025.

Motivo de la modificación: error tipográfico en el título del documento.

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Applus

TECHNICAL EVALUATION OF SUITABILITY

No. **ETI-2149**

Applus

Technical evaluation of suitability

LGAI Technological Center S.A. (APPLUS), ha realizado la Evaluación Técnica de Idoneidad con resultado satisfactorio para el producto:

Nº ETI-2172

Fecha de emisión: 05/12/2025

ETI válida hasta: 01/08/2030 mientras no se modifique el producto, ni las condiciones de fabricación en planta, a menos que sean suspendidos o retirados por el Organismo habilitado

Fecha de seguimiento: antes del 31/08/2026

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Applus

TECHNICAL EVALUATION OF SUITABILITY

No. **ETI-2150**

FIRE HOSE REEL

SYSTEM COMPONENTS

- System consisting of 2 modular cabinets painted with oven-baked red RAL3000.
- Hose reel with 20 m of 25 mm hose.
- Viper Spartan: Professional Triple Effect nozzle made of aluminum, with a constant nominal flow rate.
- Dual-mode proportioner: simple water flow with a nominal flow rate of 100 lpm or flow with 3% additive.
- Kugel 1" proportioner with fixed dosing at 3% of Cold Fire. Hose reel certified according to UNE EN 671-1: Fixed fire-fighting installations.
- Shut-off valve.
- Manometer.
- Optional additional 45mm intake.

Includes two 20-liter* Cold Fire container inside the cabinet, with Triple Suppression technology, specialized for lithium-ion battery fires.

System certified by Applus, with technical evaluation of suitability No. 2149, for use in lithium-ion battery fires.

DIMENSIONS

- Cabinet with Nozzle and Hose: 58 x 27 x 80 cm
- Cabinet with Additive Tanks: 68 x 27 x 80 cm
- Total: 126 x 27 x 80 cm

Kugel Proportioner at 3%

Professional nozzle.

eFP-600 Li-ion Battery Fire Suppression
Powered by Cold Fire

COLDFIRE

* Available in larger capacities upon request.

AUTOMATIC SPRINKLER SYSTEM

SYSTEM FEATURES

- Fire suppression system specially designed for parking areas with electric vehicles.
- Design according to UNE EN 12845 standard.
- Risk Class: Ordinary Hazard 2 (OH2)
- Design Density: 5 mm/min.
- Suppression Agent: Cold Fire at 3% in water.

System certified by Applus, with technical evaluation of suitability No. 2150, for use in lithium-ion battery fires.

SYSTEM COMPONENTS

- K80 nozzles of ½”
- Activation temperature: 68ºC
- System tested by Applus with the activation of only 4 sprinklers.
- Fixed proportioner at 3% for Cold Fire.
- 688 liters of Cold Fire additive.
- Performance time 48 minutes.

eFP-600 MOBILE UNIT

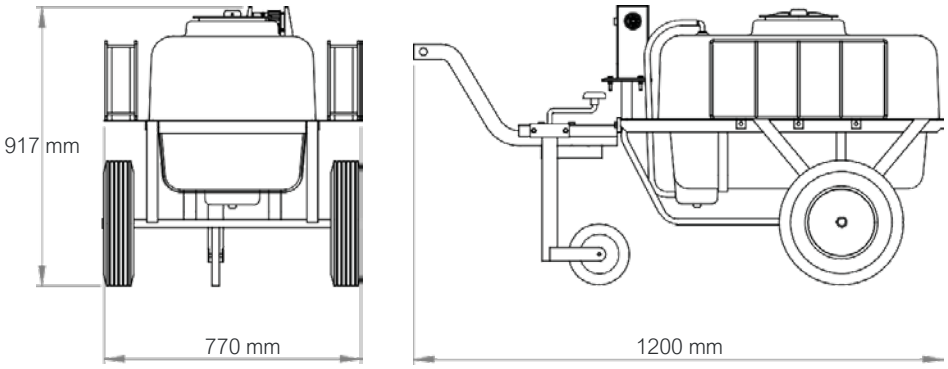
SYSTEM COMPONENTS

- Mobile cart with a red polyethylene tank, impact-resistant.
- 100 liters of Cold Fire additive, specially designed for use in lithium-ion battery fires.
- Steel tube frame, painted and mounted on solid wheels, with a parking brake.
- Level indicator band.
- BYPP-200 inline mixer with a 3% dosing system.
- VIPER STI 60P multi-effect nozzle with a nominal flow rate of 200 lpm.
- Two 45mm diameter hoses, 20 meters* in length, arranged in zigzag folding trays for quick deployment, with UNE 45mm couplings.
- Nominal flow rate: 200 lpm.
- Minimum operating pressure: 0.3 MPa.

AVAILABLE IN 2 CAPACITIES: 100 AND 200 LITERS

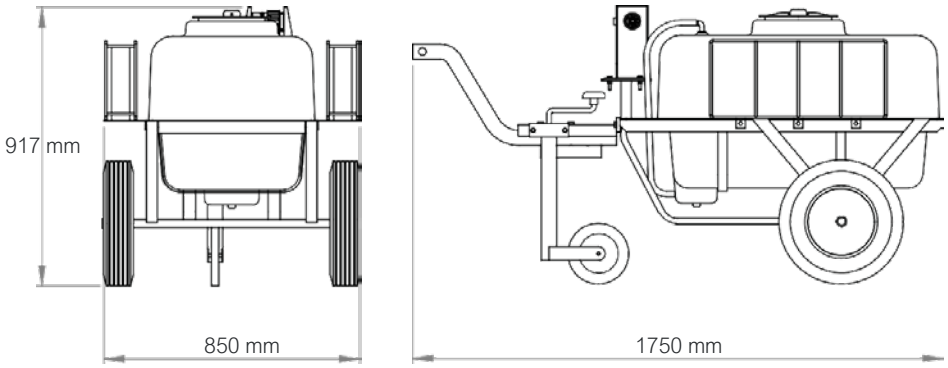
CR100: 100L

- Includes a tank with a capacity of 110 liters.
- 100 liters of Cold Fire additive, specially designed for use in lithium-ion battery fires.
- Emptying time at 3%: 16 minutes.
- Empty weight: 51 kg.



CR200: 200L

- Includes a tank with a capacity of 208 liters.
- 200 liters of Cold Fire additive, specially designed for lithium-ion battery fires.
- Emptying time at 3%: 32 minutes.
- Empty weight: 67 kg.



* Available in 25 mm hose

LI-ION BATTERY EXTINGUISHERS

SYSTEM COMPONENTS

The Cold Fire system fire extinguishers are designed for quick action in suppressing fires in Lithium-Ion battery packs.

They consist of water + **Cold Fire at 3%**, a fire extinguishing agent with **Triple Suppression Technology**: it acts as a **wetting agent, encapsulator, and inhibitor**. It multiplies the cooling power of water, encapsulates flammable gases, and prevents the re-ignition of lithium-ion batteries. It is a 100% biodegradable and environmentally safe agent.

Its great mobility and easy handling allow for controlled, effective, and targeted application, making it ideal for environments with electronic devices, electric scooters, etc. Tested according to NTA 8133 standards.

System certified by Applus, Approved according to NTA guideline 8133 for use in Lithium-Ion battery fires. Complies with EN 3-7 standard

SPECIFICATIONS

	Extinguisher 9 L.	Extinguisher 50 L.
Suppression Agent	Water + 3% Cold Fire	Water + 3% Cold Fire
Agent Quantity	9 L	45 L
Compressor Agent	25g Nitrogen	650g Nitrogen
Class A Fires	✓	✓
Class B Fires	✓	✓
Lithium-Ion Fires	✓	✓
Design Pressure	15 bar	20 bar
Height	59,5 cm	88 cm
Average Total Weight	13,6 kg	76,15 kg
Discharge Range	40 cm	5 m
Service Temperature	0 - 55 ºC	0 - 55 ºC

E-BIKE PARKING

PARKING FOR BIKES

Parking system for electric and conventional bicycles with an integrated fire extinguishing system that ensures protection in case of ignition. The system is specially designed for fires in Lithium-Ion Batteries.

Automatic fire detection system triggered by temperature. Once activated, the extinguishing action relies on a mixture of misted water and Cold Fire additive at 3%.

Its effectiveness is based on the combination of the encapsulation power of Cold Fire with its Triple Suppression Technology and the atomization of water through high-pressure nozzles. This results in a misted water and Cold Fire additive mixture, providing high cooling power in the protected space.

System certified by Applus, with technical evaluation of suitability No. 2172, for use in lithium-ion battery fires.

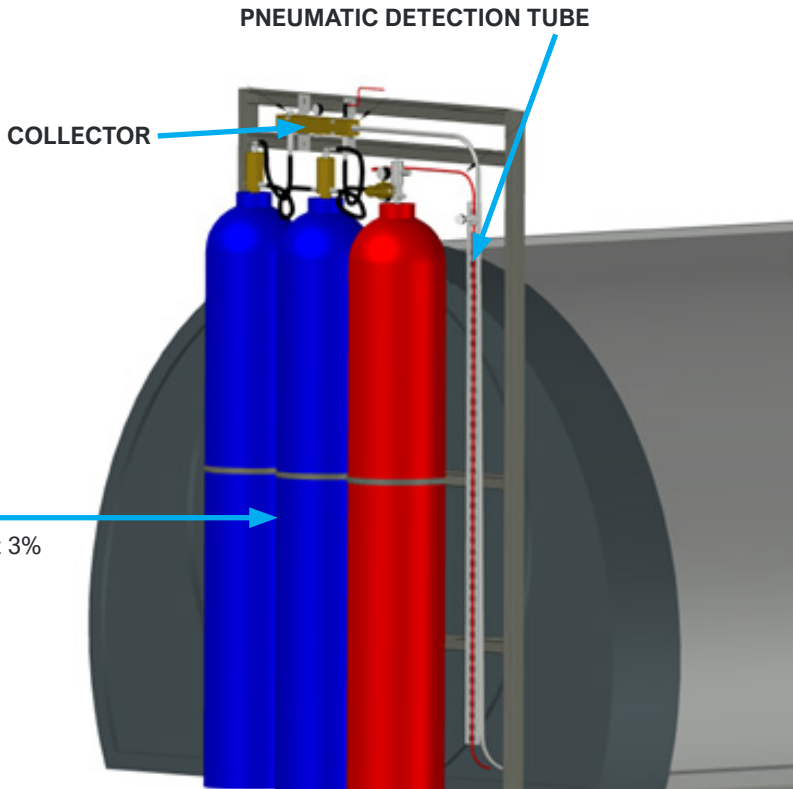
eFP-600
Li-Ion Battery Fire Suppression
Powered by Cold Fire

COLDFIRE

COMPONENTS

Fully autonomous system with no requirement of electricity or water supply. Consisting of:

- 2 Water Cylinders with interior treatment, each with a capacity of 80 liters, filled with deionized water containing a 3% concentration of Cold Fire (2.4 liters per cylinder).
- 1 Cylinder of 80 liters of pressurized N2 at 200 bar, equipped with a discharge valve.
- High-pressure misted water nozzle.
- Detection system with a pneumatic detection tube connected to the discharge valve. Activation temperature: 130ºC.



E-BIKE PARKING

OPERATION

Upon reaching the activation temperature, the detection tube will rupture, causing a drop in pressure. The differential pressure valve will open, triggering the discharge of the misted water system with Cold Fire additive through the nozzle at a maximum pipe pressure of 100 bar.

The system is designed for dual action:

- Water discharge with Cold Fire for 25 minutes to control/suppress the fire. Once activated, the immediate effect is to quickly lower the temperature inside the parking area.
- N2 discharge for 35 minutes, once the misted water discharge is complete, to ensure proper ventilation of the hangar and avoid risks associated with the presence of toxic fumes from the combustion of Lithium-Ion batteries inside the hangar.

SYSTEM CERTIFICATIONS

System tested and certified by the Applus laboratory for the control and suppression of Lithium-Ion Battery Fires in bicycles inside the Hangar:

- Complete hangar protection for 60 minutes.

Key milestones achieved during testing:

- Flame control within the first 2 minutes after system activation.
- Complete fire suppression after 5 minutes of water and Cold Fire discharge.
- The system completely prevented the re-ignition of the flame.

TES Certificate:Technical Evaluation of Suitability for the suppresion of Lithium-Ion Battery Fires

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