Parking Garage and EV Charging Station Fire Protection

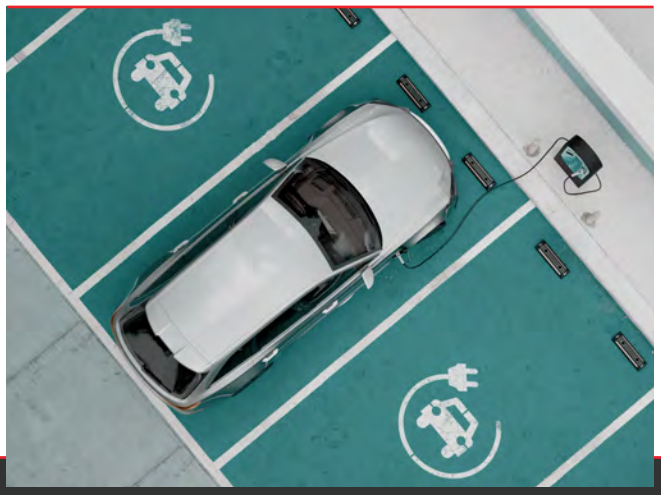
with F-500 EA® Micelle Mist

Hybrids and EVs Continue to Threaten Parking Structures

In recent years, parking garage fires have sparked headlines, often involving hybrid or electric vehicles. Research indicates that most EV fires occur while the vehicle is parked or charging. In the confined space of a garage, these incidents place firefighters in dangerous conditions.

Creating Health and Safety Concerns for Lot Owners, Businesses, Patrons, and First Responders

A fully involved structure fire can reach 1,093°C, but buildings weaken well before that. Steel-reinforced concrete starts deteriorating at 200°C, steel beams warp around 400°C, and by 600°C structural resistance drops sharply, risking partial or total collapse.



NFPA 18A Annex 4.3

This standard recognizes close to two decades of proven lithium-ion battery fire testing utilizing Encapsulator Agents.

Carried out by some of the world's most crucial power players, results from these tests demonstrate F-500 EA®'s ability to consistently and effectively mitigate life-threatening automotive risks.

Toxic Runoff

A single EV fire demands tens of thousands of liters of plain water to extinguish, creating toxic runoff.

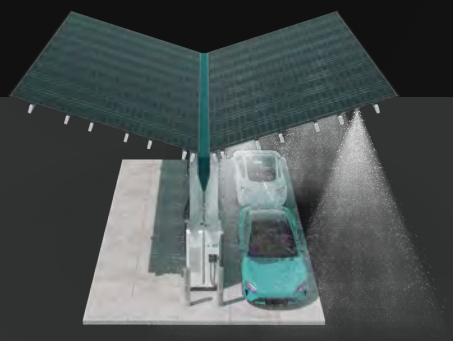
Comparing

F-500 EA®
with Plain Water

	Plain Water	F-500 EA®
Application Method Sprinkler, Deluge, and Water Mist	✔	✔
Agent Versatility Flammability, Explosivity, and Toxicity	Flammability Only	✔
Water Requirement Reduced Water Prevents Freezing	Copious Amount Required	✔
Environmental Impact Encapsulation Scrubs Runoff	Copious Toxic Runoff	✔

F-500 EA® Micelle Mist

The Complete Solution Proven to Stop Thermal Runaway Propagation



100-350
Microns

Early Detection for EV Fire Containment

F-500 EA® Micelle Mist Targets Flammability, Explosivity, and Toxicity

Encapsulator Agents change the composition of a plain water droplet with the introduction of spherical micelles.

This allows Encapsulator Agents like F-500 EA® to extinguish fires that can't be fought effectively with water mist alone. Parking structures are prone to collapse, highlighting the need for technology capable of extinguishing EV fires before they have the chance to spread.

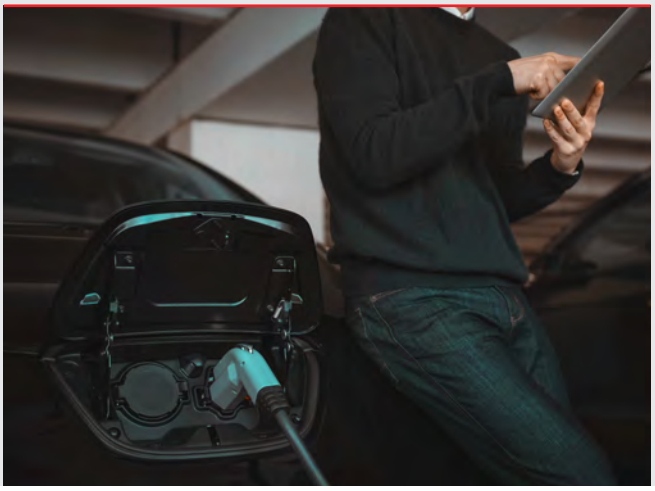
Conclusion

F-500 EA® Diamond Doser® Systems are Applus+ Approved and ETI Certified.

Reviewing

Applus+ Testing with F-500 EA®

Applus+'s facility in Madrid, Spain tested our F-500 EA® Diamond Doser® system for parking garage fire protection against 6 parameters met in 60 minutes.

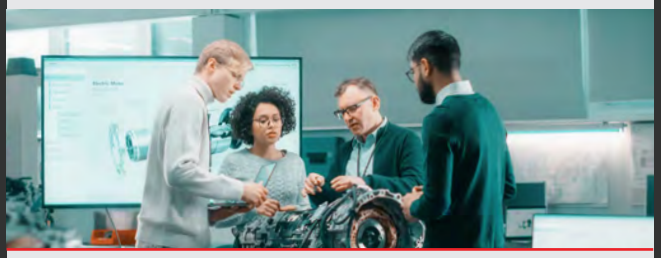


- The battery must be brought to a 90%-100% charge.
- Thermal runaway must be confirmed after 6 minutes.
- The system must be activated manually after 9 minutes.
- Temperatures in the evacuation corridor must not exceed 60°C.
- The fire must not spread to the adjacent vehicle at any point.
- Temperatures 2.5 meters from the ceiling must not exceed 70°C.

F-500 EA®
Testing Chronology

> View Full History

2008
Bosch
Official Reference Customer



2012
DEKRA
Tested and Recommended

2012
Formula 1
Specified for Circuits

2017
KIWA
Tested for Johnson Controls

2015
General Motors
Specified for Battery Abuse Labs

2016
Tesla
Specified for Charging Stations

2024
Marine Science and Engineering
Passed UL 9540A Testing

2022
NFPA
NFPA 18A Standard Published

2023
NIOSH
Tested and Outperformed Water

Hazard Control Technologies, Inc.

Since 1997

We're revolutionizing fire suppression, vapor mitigation, spill control, and contamination response with our flagship Encapsulator Agent, F-500 EA®. Manufactured in the USA, we're trusted worldwide to address today's high hazards with a formula that's always been fluorine-free, biodegradable, and noncorrosive. It's clear to see why F-500 EA® is still encapsulating the world.

Learn more at www.hct-world.com or call +1 (770) 719-5112.

Street Address
150 Walter Way
Fayetteville, GA 30214

Mailing Address
P.O. Box 142879
Fayetteville, GA 30214