

**APPLICATION BULLETIN**

## Fighting Today's Car Fires

### Cost Comparison of F-500 EA vs. Foam on Class B Fires

	AFFF		AR-AFFF (3 x 6)		F-500 EA	
	Extinguish	Cost/Gallon	Extinguish	Cost/Gallon	Extinguish	Cost/Gallon
<b>Class B - Nonpolar Solvents</b>						
Gasoline	Yes (3%)	\$20	Yes (3%)	\$30	<b>Yes (3%)</b>	<b>\$25</b>
Diesel Fuel	Yes (3%)	\$20	Yes (3%)	\$30	<b>Yes (3%)</b>	<b>\$25</b>
<b>Class B - Polar Solvents</b>						
Ethanol	No		Yes (6%)	\$60*	<b>Yes (3%)</b>	<b>\$25</b>
E10 (ethanol-blended fuel)	No		Yes (6%)	\$60*	<b>Yes (3%)</b>	<b>\$25</b>
E85 (ethanol-blended fuel)	No		Yes (6%)	\$60*	<b>Yes (3%)</b>	<b>\$25</b>

\* When AR-AFFF is applied at 6%, the comparative application cost is doubled to \$60/gallon.

Using F-500 Encapsulator Agent (EA) instead of foam will save you money. Instead of carrying AFFF for gasoline, diesel fuel, heating fuel, lubricants, jet fuel or any other nonpolar solvent fires you might encounter and then carrying expensive AR-AFFF (3 x 6) foam for ethanol or today's ethanol-blended fuel fires, you only need F-500 EA. One agent can be used at 3% on all Class B fires. Notice how applying AR-AFFF at 6% doubles your application costs on polar solvent fuels.

In addition, foams require a consistent blanket to smother fires. Foams don't remove the heat. As the blanket fails, the fuel autoignites. In fact, *NFPA 11 - Standard for Low, Medium and High Expansion Foam* (Table 5.8.2.2.) states foams must be applied to a nondiked hydrocarbon spill for a minimum of 15 minutes at an application rate of 0.10 gpm/ft<sup>2</sup> or 3%. A "nondiked spill" describes a real world spill situation where the fuel spreads freely, not confined by walls or barriers.

F-500 EA doesn't smother a fire. F-500 EA rapidly cools the fuel and surrounding structures, encapsulates the fuel, rendering it nonflammable and nonignitable and interrupts the free radical chain reaction. Any one of those three actions will extinguish a fire. F-500 EA will have a Class B fire out in no time without the chance of reignition.

### F-500 EA Saves Your Department Money

- Much less agent is required to extinguish a fire
- Much less water is used - critical for rural or highway fires
- F-500 EA replaces expensive powders for Class D fires
- Fewer comp claims with minimal smoke and no steam
- One agent, F-500 EA extinguishes Class A, B and D fires
- Encapsulate fuel spills - renders them nonflammable
- Reduces overhaul time after fires
- Independently recommended by Bosch, Dekra and Daimler for lithium-ion battery car fires



# The Challenge of Modern Car Fires

As technology progresses, firefighting becomes more and more challenging. Today's fires are hotter and more difficult to extinguish than ever before. Modern vehicles add to the challenges faced by firefighters. Lithium-ion batteries used in hybrid and electric cars present high-voltage feedback problems, as well as high-temperature, Class D metal fire complications. To save fuel by making cars lighter, manufacturers are using more and more magnesium in door frames, seat frames, dashboards, steering columns, transmission housings and many other components. Magnesium can reach 5,000°F. The fuels carried on modern vehicles can be Class B polar or nonpolar. Tires exude oil as they burn and have always presented problems. Finally, vehicles are a three-dimensional fire, not well suited to foams. With most car fires located far from hydrants, the only water available is on the truck. F-500 EA provides the fast knockdown needed when water is limited and also virtually eliminates the need for diking to prevent run-off into streams or sewers.

## Nothing Can Extinguish a Car Fire Like F-500 EA!

### Lithium-ion Batteries in Hybrid and Electric Cars

Extensive independent testing by Bosch, Dekra, Daimler (Mercedes) and Deutsche ACCUotive in Germany concluded F-500 EA was the recommended agent for lithium-ion car fires. Penetration into the battery compartments was excellent and no other agent could extinguish the other vehicle components like F-500 EA. Less agent and water is required resulting in little run-off. Voltage feedback to the nozzle is negligible with F-500 EA.



**BOSCH**  
Invented for life

### High-temperature Magnesium Components



Experienced firefighters have seen dangerous flare-ups when water is applied to car fires and are always cautious. The high temperature of burning magnesium causes the water molecules to split into explosive hydrogen and oxygen. Adding just 3% F-500 EA to your water stream prevents flare-ups and allows F-500 EA to rapidly reduce the heat. Videos show magnesium temperatures dropping from thousands of degrees to ambient in minutes.

### Tire Fires

Tires have always presented a challenge for both water and foam. Tires exude oil as they burn, effectively becoming a three-dimensional, Class B fire. Foam can't form a blanket to smother the fire. Since F-500 EA both cools and encapsulates, it extinguishes tire fires in seconds. F-500 EA also interrupts the free radical chain reaction, changing the black smoke to white. This results in improved visibility and reduced toxins.



**HAZARD CONTROL TECHNOLOGIES, INC.**

150 Walter Way  
Fayetteville, GA 30214

TEL: 770.719.5112  
FAX: 770.719.5117

[www.hct-world.com](http://www.hct-world.com)  
[info@hct-world.com](mailto:info@hct-world.com)