FIRE, VAPOR AND CONTAMINATION CONTROL SOLUTIONS

# Aviation Incident Response

EXPLORING

# TODAY'S RISING THREATS

Aviation hazards are growing more complex every year. Ensuring the safety of passengers is top of mind as contemporary synthetic materials capable of emitting flammable, explosive and toxic off-gases become commonplace. Flight teams are in need of a fluorine free fire suppression solution capable of handling today's high hazards, providing peace of mind for the general public, employees and first responders.

**According to the FAA, approximately 70% of recorded lithium-ion battery fires are passenger related.**

## Fire hazards can be found in multiple locations as the Aviation industry embraces new technology.

### Aircraft

**TURBINES**
**CARGO HOLDS**

### Runway

**BRAKES**
**GSE**

### Terminal

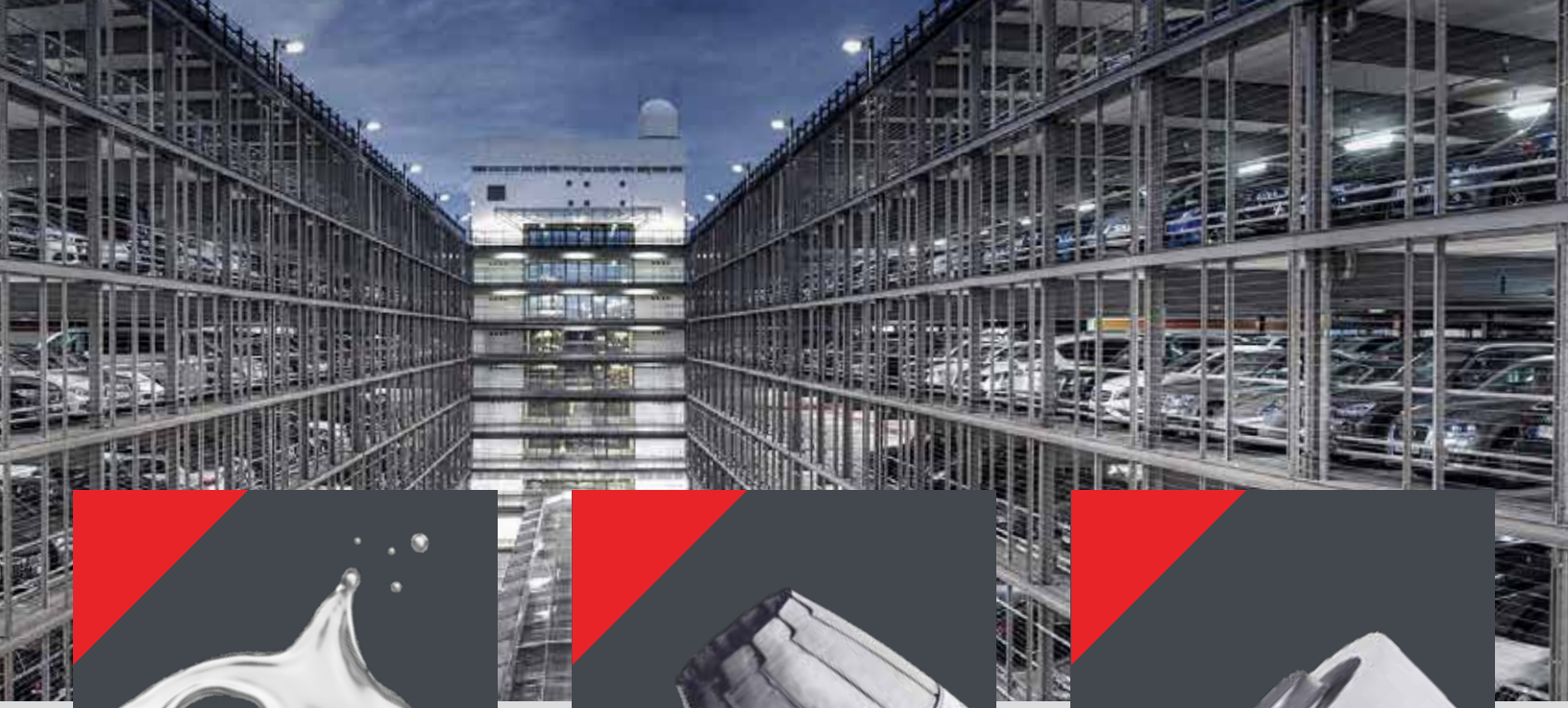
**ELECTRONICS**
**LUGGAGE**

### Parking Garage

**ICE VEHICLES**
**HYBRID VEHICLES**
**ELECTRIC VEHICLES**
**CHARGING STATIONS**

***HAZARD CONTROL TECHNOLOGIES***

*150 WALTER WAY, FAYETTEVILLE, GEORGIA 30214 / +1 770 719 5112 / INFO@HCT-WORLD.COM / HCT-WORLD.COM*









## FUELS

Jet Fuel, Avgas, Ethanol, Gasoline, Diesel, E10, E85, Hydraulic Oil, Acetone, Etc.

## METALS

Magnesium, Titanium, Aluminum, Zirconium, Lithium, Etc.

## BATTERIES

Mitigate lithium-ion battery flammability, explosivity and toxicity.

**EXPLORING**

## PARKING

Today's parking structures house vehicles containing synthetic materials, mixed fuels, lightweight metals and lithium-ion batteries.

* **Most major airports accommodate several thousand parked vehicles daily.**

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# MILSPEC ALTERNATIVES

Encapsulator Agents are versatile, safely mitigating a vast range of hazards. They excel at both fire suppression and spill control while remaining fluorine free, noncorrosive and biodegradable.

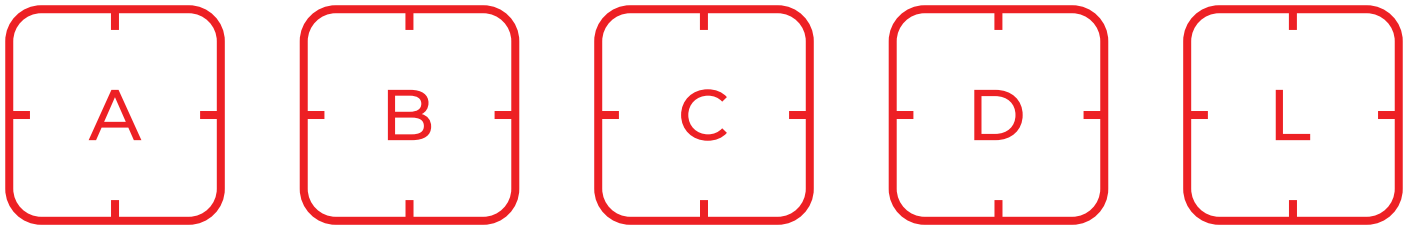
In addition to a lack of versatility and testing, many non-fluorinated foams have high viscosities of 3,000 -6,000 or more. Encapsulator Agents have a low viscosity of 75, preventing line blockages.

## F3

### Fluorine Free Foams


## EA

### Encapsulator Agents




* **LITHIUM-ION BATTERIES** 3%

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# CODES & STANDARDS

## NFPA 409

In light of the new risk-based solutions accepted in the 2022 edition of NFPA 409, innovative fire protection agents, such as UL certified Encapsulator Technology, can be utilized for advanced aircraft hangar protection.

## AC 150/5210-6D

This 2004 Advisory Circular outlines acceptable fire protection agents, including 1.2.3 Other Agents. As a result, Turkey is now utilizing Encapsulator Technology for lithium -ion battery fire suppression in 48 airports.

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## Beijing Institute of Technology

Beijing, China

"The 3% F-500 Encapsulator Agent (F-500 EA) solution reduces the hydrogen concentration, absorbing hydrogen gas through its non-polar side. In contrast, the hydrogen concentration first increases and then decreases when plain water mist is applied."

## Explosive Off-gas

Raising new concerns within aircraft cabins and cargo holds.

**Out of the off-gases detected, H2 made up 69.79% while CO2, C2H4, CH4 and CO made up the remaining 30.21%.**


| Type | H2 |
|---|---|
| *NO AGENT* | *476 PPM* |
| *WATER MIST* | *217 PPM* |
| *F-500 EA* | *14 PPM* |

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# CHINA AIRLINES FLIGHT 120 FIRE

On August 20, 2007, a devastating fire broke out following an explosion on China Airlines Flight 120 shortly after landing at Naha airport. All 157 passengers evacuated safely. The fire took 2 hours to extinguish.

CAAC

## Boeing 737 Case Study

The Civil Aviation Administration Of China (CAAC) set out to simulate this fire with the following materials:

| | |
|---|---|
| AVGAS | 3 TONS |
| TIRES | 500 |
| WOOD | 12 CUBIC METERS |

## Result

After a 4-minute preburn, the 3% F-500 Encapsulator Agent (F-500 EA) solution was applied utilizing two 500 l/min nozzles. The fire was extinguished after just 7 minutes.

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