

**EV Battery Fire Suppression – Operational Comparison Sheet**  
**Flamblocker CF7 vs Water vs Foam**  
**Incident Type: Lithium-Ion Battery Thermal Runaway (EV Vehicle)**

**1. Core Performance Metrics**

Parameter	Flamblocker CF7	Water (Standard)	Foam / Other Agents
Primary Function	Extinguishing + deep cooling	Surface cooling	Surface suppression
Thermal Runaway Control	<b>Yes – propagation terminated</b>	No (cooling only)	No (limited effect)
Time to Stabilization	~6 minutes	8–24+ hours	8–24+ hours
Re-ignition Risk	<b>No restart observed</b>	High	High
Cooling Mechanism	Penetrative + sustained	External / evaporative	Limited penetration
Effect on Internal Cells	<b>Direct cooling &amp; stabilization</b>	Indirect / insufficient	Minimal

**2. Water Usage & Environmental Load**

Parameter	Flamblocker CF7	Water (Standard)	Foam / Other Agents
Water Volume Required	~1,980 L	10,000+ L	10,000+ L
Runoff Contamination	Reduced (~80%)	High	High + chemical additives
Soil Remediation Required	No (agent-related)	Yes	Yes
Emission Duration	<b>Short (minutes)</b>	Prolonged (hours)	Prolonged (hours)
Environmental Impact	<b>Low</b>	High	High

**3. Firefighter Safety & Exposure**

Parameter	Flamblocker CF7	Water (Standard)	Foam / Other Agents
Exposure Time to Toxic Gases	<b>Reduced (~80%)</b>	Extended	Extended
IDLH Duration	<b>Shortened</b>	Prolonged	Prolonged
Explosion / Re-ignition Risk	<b>Reduced</b>	Elevated	Elevated
Operational Fatigue (SCBA)	<b>Reduced</b>	High	High
Scene Control	<b>Rapid stabilization</b>	Dynamic / prolonged	Dynamic / prolonged

**4. Operational Deployment**

Parameter	Flamblocker CF7	Water (Standard)	Foam / Other Agents
Time on Scene	<b>Minutes</b>	Hours to days	Hours to days
Water Logistics Requirement	<b>Low</b>	Very high	Very high
Multi-Vehicle Capacity	<b>High</b>	Limited	Limited
Re-Deployment Readiness	<b>Immediate</b>	Delayed	Delayed (cleaning required)
Pump / System Impact	<b>Non-corrosive</b>	None	Potential corrosion/clogging

## 5. Environmental & Regulatory Compliance

Parameter	Flamblocker CF7	Water (Standard)	Foam / Other Agents
PFAS / Fluorine Content	None	None	Often present
Biodegradability	100%	N/A	Often non-biodegradable
Toxicity (Agent)	Non-toxic	None	Potentially toxic
EU Compliance (REACH / PFAS)	Fully compliant	Compliant	Increasingly restricted
Impact on Wildlife	None (agent-related)	Indirect (runoff)	High (chemical exposure)

## 6. Tactical Outcome

Parameter	Flamblocker CF7	Water (Standard)	Foam / Other Agents
Propagation Control	Achieved	Not achieved	Not achieved
Thermal Runaway Termination	Yes	No	No
Fire Containment Strategy	Active suppression	Prolonged cooling	Prolonged containment
Operational Model	<b>Rapid intervention</b>	Defensive / long-duration	Defensive / long-duration

### Operational Summary

- **Flamblocker CF7** enables **active interruption of thermal runaway**, significantly reducing intervention time, water usage, and environmental impact.
- **Water and foam-based methods** remain largely **cooling and containment strategies**, requiring extended operations with high logistical and environmental burden.

### Key Operational Difference:

CF7 shifts EV firefighting from *prolonged containment* to **rapid propagation control and stabilization**.