

EV FIRE FIELD CARD – THERMAL RUNAWAY RESPONSE

Scenario: Lithium-ion battery thermal runaway (EV vehicle)

Key Risks: >2000°C, toxic gases (HF, CO, HCN), internal oxygen generation, re-ignition risk, explosion hazard.

CF7 Tactical Approach

- Direct attack on battery compartment
- Combine surface cooling with penetration
- Maintain flow until propagation stops
- Monitor for re-ignition (reduced risk)
- Typical stabilization: ~6 minutes

Operational Comparison

Parameter	CF7	Water/Foam
Time to control	~6 min	8–24+ hrs
Water usage	~2,000 L	10,000+ L
Thermal runaway	Stopped	Not stopped
Re-ignition	No	High risk
Exposure time	Reduced	Prolonged

Environmental Impact

- ~80% reduction in water usage
- ~80% reduction in emissions
- Minimal contaminated runoff
- PFAS-free, biodegradable, non-toxic

Key Outcome

Rapid termination of thermal runaway reduces operational duration, environmental damage, and firefighter exposure.