

Application Bulletin 8

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Application Bulletin: **Vehicle Storage** • Technology: **FirePro Condensed Aerosol**

Application
Vehicle Storage

The Risk
Combustible materials, electrical systems, fuel, lubricants and, increasingly, lithium-ion traction batteries, often combined with high-value vehicles.

This Bulletin Covers
- Design considerations
- Environmental requirements
- End user responsibilities
- Post-discharge procedure
- Myths & comparative analysis

Mandatory Message to End Users
"Vehicles must be fully covered with a suitable protective vehicle cape whenever the FirePro system is live. This prevents potential paintwork effects caused by exposure to condensed aerosol particulates."

Condensed Aerosol Fire Suppression in Vehicle Storage

Design Considerations, Environmental Requirements, End User Responsibilities, Myths & Comparative Analysis

1. Introduction

Vehicle storage enclosures present a unique fire risk profile due to the presence of combustible materials, electrical systems, fuel, lubricants, and increasingly, lithium-ion traction batteries.

FirePro condensed aerosol (CA) technology provides an effective, LPCB-certified suppression solution for these environments, particularly where traditional gaseous systems are impractical due to cylinder storage, venting requirements, or room integrity constraints.

This bulletin outlines the design considerations, environmental requirements, end-user responsibilities, and common myths relevant to FirePro systems in vehicle storage applications.

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2. Purpose of FirePro in Vehicle Storage Environments

FirePro is designed to suppress fire rapidly and effectively, preventing fire growth, limiting damage, and protecting life and property.

However, FirePro is not designed to protect exposed vehicle paintwork from environmental effects during or after discharge.

> **Therefore:**
> *All vehicles within a FirePro-protected enclosure must be suitably covered with a vehicle cape to avoid the potential for corrosive damage to paintwork.*

This requirement must be communicated clearly to the end user during design, installation, and handover.

3. Important Note on Potential Paintwork Effects

FirePro is not a pure gas agent and does not claim to leave zero residue. A light, dry aerosol particulate may settle on exposed surfaces after discharge.

On vehicle paintwork, this may lead to:

- Temporary surface dulling, or
- Potential corrosive effects if residue remains in contact with unprotected paint for extended periods.

> **Mandatory message to end users:**
> *"Vehicles must be fully covered with a suitable protective vehicle cape whenever the FirePro system is live. This prevents potential paintwork effects caused by exposure to condensed aerosol particulates."*

This is a mandatory operational requirement.

4. Why Sprinklers and Water-Based Systems Are Unsuitable for Vehicle Storage

Water-based suppression systems pose significant risks in vehicle storage environments; this includes sprinklers, pre-action sprinklers, and water mist.

4.1 Water Causes Damage to Vehicle Interiors and Electronics

- Water ingress can damage ECUs, wiring looms, sensors, infotainment systems, and battery management systems.
- Upholstery, carpets, and insulation can become saturated and mould-prone.

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4.2 Water Reacts with Lithium-Ion Batteries

- Water can exacerbate thermal runaway events.
- Water mist can cause electrical tracking and short circuits.

4.3 Collateral Damage Beyond the Fire Area

Sprinklers activate across wide zones, often affecting multiple vehicles.

4.4 Water Mist Still Introduces Moisture

Even fine droplets can:

- Enter air intakes
- Damage electronics
- Promote corrosion

4.5 Water Damage Often Exceeds Fire Damage

In many vehicle storage incidents, water damage destroys more vehicles than the fire itself.

5. Why FirePro Is Better Suited for Vehicle Storage Enclosures

FirePro offers a unique combination of fire suppression performance and minimal collateral impact.

5.1 No Water Damage

FirePro contains no water, no mist, and no moisture, eliminating the risk of:

- Electrical damage
- Interior saturation
- Mould growth
- Water-induced corrosion

5.2 Effective on Class A, B, C and Lithium-Ion Risks

Vehicle fires often involve:

- Plastics
- Upholstery
- Wiring
- Fuel
- Lubricants
- Lithium-ion batteries

FirePro is proven across these categories.

5.3 No Cylinders, Pipework, or Venting

Ideal for retrofit garages, storage barns, and vehicle vaults.

5.4 Minimal Pressure Rise

No PRVs required: a major advantage over gas systems.

5.5 High Tolerance to Leakage

Vehicle storage buildings often have imperfect integrity; FirePro performs reliably regardless.

5.6 Long 15-Year Life

Lower total cost of ownership.

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5.7 Minimal Clean-Up

Dry, non-corrosive particulate that wipes away easily from protected surfaces.

6. Vehicle Protection Requirements (Mandatory)

To prevent potential paintwork effects:

6.1 All vehicles must be fully covered

- Use non-abrasive, chemically neutral vehicle capes.
- Covers must fully protect:
  - Roof
  - Bonnet
  - Boot
  - Doors
  - Glass
  - Wheels (optional but recommended)

6.2 Covers must be fitted whenever the FirePro system is live

- During storage
- During charging
- During maintenance periods where the system remains active

6.3 Covers must be removed only after the system is isolated

This prevents accidental exposure during testing or maintenance.

7. Environmental Conditions

Maintaining stable environmental conditions reduces particulate adhesion and protects vehicle finishes.

Recommended parameters:

RELATIVE HUMIDITY Low and controlled	**TEMPERATURE** Above 10°C
AIR HANDLING HVAC must shut down before activation	**POST-DISCHARGE VENTILATION** Ventilate within 10–15 minutes

8. Design Considerations for Vehicle Storage Enclosures

8.1 Fire Load & Volume

- Include vehicle volume and air gaps.
- Apply leakage compensation.

8.2 Generator Positioning

- Avoid direct discharge onto vehicles.
- Maintain clear discharge paths.

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8.3 Electrical & Control Integration

- Mandatory HVAC shutdown.
- Local isolation (blue call point).
- Integration with fire alarm/BMS.

8.4 Lithium-Ion Considerations

- Vehicles with traction batteries require enhanced detection.
- Consider thermal monitoring or early-warning systems.

9. Post-Discharge Procedure

1. Ventilate the enclosure within 10–15 minutes.
2. Remove vehicle covers only after ventilation.
3. Wipe exposed surfaces with a dry or slightly damp cloth.
4. Inspect vehicle electronics for contamination.
5. Reset and recommission the FirePro system.

10. Common Myths & Factual Counter-Objections

Myth 1: "Aerosol will corrode vehicle paintwork."

Fact: Paintwork is only at risk if left uncovered. Using a vehicle cape eliminates this risk entirely.

Myth 2: "Sprinklers are safer for vehicles."

Fact: Water causes catastrophic damage to interiors, electronics, and lithium-ion systems. FirePro contains no water and avoids these risks.

Myth 3: "Gas systems are better for vehicle storage."

Fact: Gas systems require airtight rooms, PRVs, and cylinder storage; rarely feasible in garages or barns. FirePro requires none of these.

11. Transparency Statement

FirePro UK maintains full transparency:

- FirePro is designed to suppress fire, not to protect exposed paintwork.

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- All vehicles must be covered with a suitable vehicle cape whenever the system is live.
- FirePro is not a zero-residue agent; a light particulate may settle on exposed surfaces.
- Environmental control and correct covering eliminate the risk of paintwork effects.
- FirePro is not certificated for deep-seated fires.
- FirePro is often the only viable suppression option where gas or water systems are impractical.
- FirePro does not introduce water or moisture, avoiding catastrophic damage associated with sprinklers or mist.

12. Summary

FirePro condensed aerosol is a highly effective suppression solution for vehicle storage enclosures, offering major advantages in installation simplicity, cost, and environmental performance. Unlike sprinklers or water-based systems, FirePro does not introduce moisture, does not damage electronics, and does not risk catastrophic water damage.

> **To prevent potential paintwork effects:**
> *All vehicles must be fully covered with a suitable vehicle cape whenever the FirePro system is live.*

With correct design, environmental control, and user awareness, FirePro provides robust, reliable protection for vehicle storage environments where traditional systems are impractical or undesirable.

If you would like to learn more about FirePro, or discuss a vehicle storage application, please visit us at **www.fireprouk.com** – see contact details below.

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