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Lithium-Ion Battery Fires Guidance Document

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Acknowledgment

This document is based on the Fire Industry Association (UK)'s *Guidance on Li Ion Battery Fires*. Portions reproduced with permission.

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1 Introduction

This document has been developed based on one prepared by the FIA Li-ion battery SIG, which comprises FIA Members and other interested parties and organizations. The SIG is open to FIA Members and others with an interest in increasing the understanding of the issue of lithium-ion battery fires and protecting people and property from consequences of these fires.

This document represents the current understanding of the industry and will be updated as more information becomes available.

2 Scope

This guidance paper provides information on the issues related to:

a. The use of lithium-ion batteries
b. How fires start in batteries
c. How fires may be detected, controlled, suppressed, and extinguished

It also provides guidance on post-fire management. Excluded from the scope are explosion and ventilation issues.

3 Terms and Definitions

3.1 Battery

A container consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power.

3.2 Lithium-Ion Battery

A rechargeable battery that uses lithium-ions as the primary component of its electrolyte.

3.3 Energy Storage

The capture of energy produced at one time for use at a later time.

3.4 Energy Storage System

Collection of batteries used to store energy.

3.5 Electric Vehicle

Vehicle that uses one or more electric motors for propulsion.

3.6 Battery Management System (BMS)

Electronic system that manages a rechargeable battery.

3.7 Thermal Runaway

Exothermic chemical reaction generating more heat than is being dissipated.

> Note: This can be characterized where a self-heating rate of 18°F/min (10°C/min) or greater occurs.

3.8 Thermal Propagation

Where a single battery cell thermal runaway spreads to neighboring cells.

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