

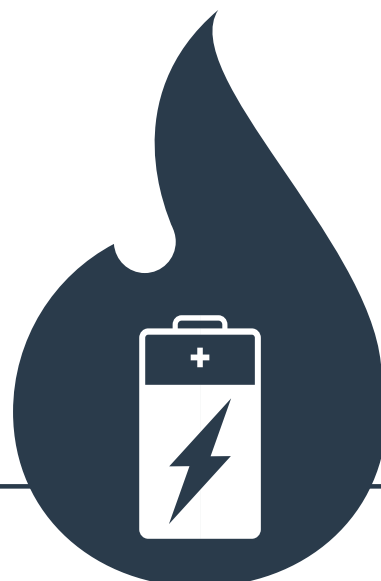
**Guidance  
Note**



**Fire Industry Association**

Leading Excellence in Fire Since 1916

**Guidance on the Requirements for fire  
retardant batteries under the Low Voltage  
Directive**



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## 1. Background

FIA members are being asked whether all combustible plastic material within a fire enclosure must have a V-2 or better flammability rating, this guidance document explains the reasons behind the request and the implications for installers/maintainers.

The Low Voltage Directive (2014/35/EU) outlines essential safety requirements for electrical equipment, operating with a voltage between 50-1000v AC and 75-1500v DC. The regulations set out the requirements that must be met before electrical equipment products can be placed on the market. The purpose of the legislation is to ensure safe products are placed on the market by requiring manufacturers to show how their products meet the principal elements of the safety objectives.

It applies to:

- Power supplies.
- Control and indicating equipment with enclosed power supplies.
- Components (if they form an integral part of the equipment) and subassemblies of PSU's and CIE's including batteries.

## 2. Applicable standards

One route for equipment manufacturers to demonstrate compliance with the LVD, is to design and test a product, against a published product safety standard. Traditionally, Fire & Security companies have referred to safety standards EN IEC 60960-1 and EN IEC 60065, however these have now been superseded by EN IEC 62368-1. The IEC 60065 and IEC 60950-1 standards were withdrawn in December 2020, and IEC 62368-1 came into effect the same day.

EN IEC 62368-1 classifies energy sources, and sets out safeguards against those energy sources, and provides guidance on the application of, and requirements for, those safeguards which includes in the case of fire, property damage

There are several options available to manufacturers to meet the requirements but increasingly enclosures are being designed such that fire retardant batteries are necessary.

The classifications for flame flammability in UL 94 (From lowest (Least flame-retardant) to highest (Most flame-retardant)) are:

- HB: slow burning on a horizontal specimen; burning rate < 76 mm/min for thickness < 3 mm or burning stops before 100 mm
- V-2: burning stops within 30 seconds on a vertical specimen; drips of flaming particles are allowed.
- V-1: burning stops within 30 seconds on a vertical specimen; drips of particles allowed as long as they are not inflamed.
- V-0: burning stops within 10 seconds on a vertical specimen; drips of particles allowed as long as they are not inflamed.

### 3. Implications for installers/Maintainers

When installing batteries in the CIE installer/maintenance technicians should confirm with their suppliers any flammability requirements for the batteries to be used.

When confirmed, batteries with a suitable flammability rating should be installed.

*Note: The use of flame-retardant batteries (e.g., UL 94 V2 or higher) where they are not required may be preferable if the EN 54-4 approval does not preclude their use.*

### 4. References

- EN IEC 60065 Audio, video and similar electronic apparatus - Safety requirements
- EN IEC 62368-1 Audio/video, information and communication technology equipment - Part 1: Safety requirements
- <https://www.gov.uk/government/publications/electrical-equipment-safety-regulations-2016/electrical-equipment-safety-regulations-2016-great-britain>
- UL 94, the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances,

