

PORTABLE FIRE EQUIPMENT FOR LITHIUM-ION BATTERY FIRES

A fire safety guideline for the use of portable fire extinguishers and fire blankets for lithium-ion battery fires

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1. Introduction

This guideline is issued under Section 10(4) of the *Fire Service Act 1979 (Tasmania)* and outlines the position of the Tasmania Fire Service (TFS) on the suitability of portable fire extinguishers and fire blankets for lithium-ion battery fires.

It provides technical guidance to:

- a. Building owners and occupiers
- b. Building industry professionals (including designers and fire engineers)
- c. Fire industry professionals (including equipment installers)
- d. Manufacturers and retailers

Lithium-ion batteries are widely used across residential and commercial settings and continue to evolve in design and manufacture. While generally safe, they may present a fire risk if damaged, defective, misused, or improperly charged.

Several incidents in Australia have demonstrated the potential for significant property damage resulting from lithium-ion battery fires.

Portable fire extinguishers are regulated and must comply with AS/NZS 1841, AS/NZS 1850, and AS 2444 (or NZS 4503) for sale and installation. These standards do not currently include testing or certification for lithium-ion battery fires.

Relevant guidance has been published by the Australasian Fire and Emergency Services Authorities Council (AFAC), including:

1. Advisory note on 'Fire extinguishers and fire blankets marketed for lithium-ion battery fires.'
2. Community safety messages and considerations for lithium-ion batteries

TFS has produced a 'Home Fire Safety Fact Sheet' with Lithium-ion battery fire safety tips and the installation of fire extinguishers and fire blankets.

2. Standards for portable fire extinguishers

In Australia, portable non-aerosol fire extinguishers must comply with the *Consumer Goods (Portable Non-aerosol Fire Extinguishers) Safety Standard 2021*. This standard covers extinguisher discharging agents such as water, wet chemical, foam, powder, and carbon dioxide.

It prescribes requirements for construction, performance testing, and identification, and is based on elements of AS/NZS 1841.1-2007. Performance testing aligns with AS/NZS 1850-2009.

3. Portable fire extinguishers and fire blankets for lithium-ion battery fires

TFS is aware of products marketed for lithium-ion battery fires; however, AS/NZS 1850-2009 does not include a test method to verify their effectiveness for this purpose.

Caution is advised when using extinguishers without appropriate classification, particularly where they lack an 'E' rating for electrical fires.

TFS recommends assessing the broader fire risks within the environment and selecting extinguishers suited to those hazards where practicable.

TFS does not support the use of extinguishers marketed specifically for lithium-ion battery fires unless they carry Australian Standard certification or are certified through the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

The Commonwealth Scientific and Industrial Research Organisation (CSIRO), through Advisory Note AN-004 (CSIRO) and the ActivFire® Scheme, has confirmed that no extinguisher can currently be certified as effective for extinguishing lithium-ion battery fires due to the absence of an applicable Australian Standard.

AS/NZS 3504:2006+A1 specifies requirements for fire blankets, including design, materials, dimensions, and performance testing.

The standard addresses:

- Minimum size and material performance
- Heat resistance and durability
- Labelling and user instructions

It does not include any provisions specific to fire blankets intended for lithium-ion battery fires.

4. The selection and location of portable fire extinguishers

AS 2444, referenced by the Building Code of Australia, provides requirements for the selection and installation of fire extinguishers based on fire class and risk.

The standard does not currently specify extinguishing agents for lithium-ion battery hazards. Selection must therefore be based on the identified fire risks within the environment, using classification and ratings determined under AS/NZS 1850.

5. International standards

ISO 3941:2026 introduces a new Class L classification for lithium-ion battery fires, and industry discussion is increasing.

ISO standards are not automatically adopted in Australia. For ISO 3941:2026 to have local effect, Standards Australia must formally adopt it, relevant Australian Standards must be revised, and updates must be referenced in the National Construction Code or legislation. This process requires formal consultation and approval.

Until this occurs, Class L has no regulatory status in Australia.

6. Conclusion

Currently, AS/NZS 1841:2007 and AS/NZS 1850:2009 do not include fire classifications or performance tests for extinguishers intended for lithium-ion battery fires. Likewise, AS/NZS 3504 and AS 2444 do not identify fire blankets as suitable for this hazard.

No fire extinguisher available in Australia has an approved classification or recognised test rating under the Australian Standards framework for lithium-ion battery fires. As a result, products marketed for this purpose cannot claim compliance with the relevant Australian Standards or the ACCC Mandatory Safety Standard.

It is advised to exercise caution when assessing or relying on supplier claims regarding lithium-ion battery fire performance.

7. References

Australasian Fire and Emergency Services Authorities Council. (2024) *Community Safety Messages and Considerations for Lithium-ion Batteries and Emerging Energy Risks* (AFAC Publication No. 3100). AFAC, Melbourne, Australia.

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Standards Australia, (2001), *Portable fire extinguishers and fire blankets - Selection & location*, AS 2444: 2001.

Standards Australia, (2007), *Portable fire extinguishers series*, AS/NZS 1841:2007

Standards Australia, (2009), *Portable fire extinguishers - Classification, rating and performance testing*, AS/NZS 1850:2009.

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