

# Storing lithium ion batteries safely

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### How to Store Lithium-ion Batteries: Maintenance and Handling Precautions

The configurability and endless practical use cases of lithium-ion batteries make them highly popular in many industries. Thanks to their high efficiency, impressive power to weight ratio and low self-discharge, it's expected that the demand for lithium-ion batteries will increase by 7X globally between 2022 and 2030.

These batteries have become so ubiquitous that many people forget the most important tenet of these batteries: they must always be treated like they might combust at any minute, particularly when no longer in normal use.

A damaged battery can cause a fault to be triggered, which is what often leads to fire. When a faulty battery is in storage and combusts, it may cause other batteries to ignite and releasing toxic, flammable vapours that make the fire incredibly challenging to manage. Lithium-ion battery fires can even reignite after being contained.

In this post, we'll talk through the safe storage requirements for lithium-ion batteries that manage the risks to keep people and facilities safe.

The UK doesn't have specific regulations or legislation for the general storage of lithium-ion batteries. The Health and Safety Executive has, however, published guidance on good practices for handling and storing batteries, even though it is not compulsory.

Regulations are not prescriptive but instead follow the typical routes:

You can find the HSE's guidance for using electric storage batteries safely [here](#). If you have complex battery needs or concerns, you can also work directly with the HSE, which can provide some battery testing methodologies.

Where new regulations do exist, they target the dedicated lithium-ion battery sites, which are developed for the purpose of storing batteries, not incidentally storing batteries as part of the course of business. These new regulations were brought in from a lack of support from the planning system as well as the recently published UK Battery Strategy, which will help the UK develop a world-leading battery supply chain and take advantage of the continued global demand for batteries. The new regulation also accepted consultation from England's fire and rescue service (FRS) and also made FRSs statutory consultants for the planning application process for building new industrial lithium-ion battery storage facilities.

Spontaneous lithium-ion fires rarely occur, but the risks associated with a fire are incredibly severe. The root

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cause of a short circuit in the battery can come from the cell design, temperature, storage period, state-of-charge, or chemistry. It is considered a risk to store the battery in the open or share a storage unit with anything combustible.

In general lithium-ion batteries should always be removed from the devices they power and stored at 60-70% of the pack's capacity. If a battery will go unused for three more days, it should be stored in a cabinet or larger store.

Once disconnected, storing lithium-ion batteries follows similar principles as the correct storage of chemicals. The storage facility (e.g. a flammable storage cabinet) should be located away from heat and ignition sources and should offer:

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