



## LITHIUM GUIDE

# Is Lithium Safe? Understanding LiFePO4 Stability and Fire Risk

Not all lithium chemistries behave the same. LiFePO4 is the stable one, and a good BMS does most of the safety work for you.

ATB Power · Battery Solutions · 5 min read

Most lithium fire stories involve high-energy chemistries such as NMC or damaged consumer cells. ATB lithium batteries use lithium iron phosphate (LiFePO4), the most thermally stable mainstream lithium chemistry, paired with a battery management system (BMS) that prevents the conditions that cause trouble.

### — Why LiFePO4 is different

- The iron-phosphate cathode is chemically stable and resists thermal runaway far better than NMC or cobalt chemistries.
- It has a higher thermal runaway onset temperature and releases less energy if it ever fails.
- It does not off-gas in normal use and has no acid to spill.

### — What the BMS does

Every pack has a BMS that continuously protects the cells. It stops charging on over-voltage, disconnects the load on over-discharge, cuts out on over-current or short circuit, and blocks charging below 0 degrees C. In practice the BMS removes the main causes of lithium incidents.

### — Good practice that keeps it safe

- Use a charger set to the correct LiFePO4 profile and system voltage.

- Do not open, crush, puncture or submerge the battery.
- Stop use if a battery is swollen, hot, or damaged, and isolate it.
- Store at 40 to 60% charge in a cool, dry place.

#### IF A BATTERY IS DAMAGED

Move it away from combustibles, do not charge it, ventilate the area, and contact ATB. A LiFePO4 fire is cooled with large amounts of water or a lithium-rated extinguisher.

For full handling, charging and transport detail, see the ATB Lithium operating manual and safety data sheet on the Resources page.

### Need help choosing or specifying?

Talk to ATB for datasheets, fitment and custom configurations.

[Request specifications](#)

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