Lithium ferro phosphate battery scooter

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Have you ever wondered why there"s been a surge in electric bike and electric scooter fires in the news lately? Well, electric scooter safety all boils down to chemistry!

Naturally, e-bike and e-scooter manufacturers like their vehicles to be equipped with batteries that tick all the boxes: low cost, lightweight, small pack size, and long-range capabilities. Typically, manufacturers turn to NMC cells, boasting high energy density, as their go-to choice, for the long-range and compact size of NMC.

But hold on a second, what about safety? Are NMC cells the safest option out there? Unfortunately, they"re not. They can be quite hazardous if mishandled or abused.

So, as the demand for more efficient, compact, and long-lasting batteries grows, it"s essential to consider not just performance, but also safety. And that"s where LFP batteries step in to revolutionise the game.

Stay tuned as we delve deeper into the world of LFP batteries and uncover why they might just be the safer, more ethical and all-round smarter choice for powering our micromobility revolution.

An LFP battery, short for Lithium Ferro Phosphate, is a type of lithium-ion rechargeable battery. LFP battery cells have cathodes made of the Lithium compound Lithium Ferro Phosphate (LiFePO4 or Lithium Iron Phosphate).

LFP is one chemistry that is part of the lithium-ion battery family. Lithium-ion batteries are commonly used in rechargeable consumer electronics, but often we don"t know the differences in chemistry when we make a purchase. Other types of Lithium-ion include NMC (Nickel Manganese Cobalt Oxide), LCO (Cobalt Oxide), LMO (Manganese Oxide) and NCA (Nickel Cobalt Aluminium). Each type has a slightly different performance rating, advantages and disadvantages.

For example, NMC batteries are commonly used in e-bikes and e-scooters and some EVs. LCO batteries are commonly used in small personal electronics like phones, laptops and cameras. LMO batteries are commonly used small devices such as power tools. NCA batteries are popular in the electric vehicle market.

The secret lies in the chemistry! LFP is extremely stable because its inherently resistant to thermal runaway.

Thermal runaway is the term which describes the uncontrollable self-heating of a battery which can lead to a fire that is extremely violent and difficult to extinguish.

However, LFP is not at all prone to thermal runaway and this is due to two important features when compared to the more common NMC li-ion (Nickel Manganese Cobalt).

Graph cited from research paper "Total Stored Energy and its Impact on Thermal Runaway" Sandia National Laboratories 2016

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