ces research & consulting

NEW REPORT

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CES RESEARCH · BATTERY RECYCLING · LFP

LFP recycling: who pays for the feed?

LFP is recyclable at a profit – for whoever holds the feed. In China the cathode industry's cost war pays for recycling. Outside China the battery owner pays: pre-processing costs about ten times as much, and few local plants can use what recycling recovers.

$580

Full cost of recovering lithium from a tonne of LFP black mass in a new Chinese plant; $330 in cash in an existing one

73%

Payable on black mass – at or just below the break-even of an existing lithium-only refiner; integrated buyers can afford 93%

$12–19

Paid per kWh by a European owner of scrap LFP batteries at today's utilisation; a Chinese owner receives about $12

Headlines

- **The process is cheap; the feed is not.** With its own feed, a Chinese recycler covers its full cost above about $4,700 a tonne of lithium carbonate – a third of today's price; with iron phosphate recovery, the $FePO_4$ alone roughly covers it.
- **LFP recycling is pulled by the cathode industry's cost war.** Precursors made from bought black mass save about $680 a tonne of cathode – 11 points of gross margin in an industry whose margins were 2–9% in 2025.
- **Outside China the battery owner pays.** Like for like, Chinese pre-processing costs about a tenth of Europe's. Recycling must stay local while the materials it competes with are made wherever they are cheapest.
- **Pre-processing is the lever, not market access.** The Chinese black mass price would be worth only $2–4 per kWh to a European owner. Cheaper, fuller pre-processing, recovery under one roof and second life do more.

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Ferrous sulphate at an LFP recycling plant in China. By-products decide whether a flowsheet pays (section 7).

Why read it and join the workshop

Battery owners: what end of life will cost you, and how second life and the right partners cut it.

Battery and cathode producers: how recycled feed and better grades compete for your margin.

PROs: why rewarding second life, not only recycling, puts the money where the value is.

Recyclers: where the margin comes from: utilisation, feed, by-products, one roof.

Traders: how black mass is priced, and who can afford to pay.

Investors: what margins to expect, and which models hold up.

NGOs and governments: what export restrictions really do, and who ends up paying.

Built from Chinese plant permits, company accounts and the CES database of about 125 Chinese recycling facilities that take LFP. 50 pages, 26 figures.

Online workshop: understand it, test it, act on it

Test your assumptions and ours, and leave with directions for making LFP pay at end of life.
Thu 12 Nov 09:00 or Mon 16 Nov 14:00 London · Free for CES Online subscribers
circularenergystorage.com/lfp-recycling-workshop

£1,500
Report with workshop
Workshop only £500
excl. VAT