

Solar container lithium battery pack discharge method





Overview

Why is discharge important in the recycling of retired lithium-ion batteries?

Discharge is an essential step during the recycling of retired lithium-ion batteries. However, state-of-the-art discharge methods are inefficient and/or contribute to pollution, as the reaction mechanisms underlying different discharge pathways remain poorly understood.

What is a safe discharge strategy for retired lithium-ion batteries?

As a consequence, a rapid and safe discharge strategy for retired lithium-ion batteries is developed through a reversed physical short-circuit with which the lithium-ion migration velocity achieves 610.07 mg/h and the energy consumption is reduced by 54.24% compared with traditional physical discharge.

Do lithium-ion batteries need a battery pack?

To meet practical usage requirements, lithium-ion batteries usually need to form a battery pack. However, due to production deviations and different usage environments, there are inconsistencies between batteries within the battery pack. This makes it challenging to estimate the state of charge (SOC) of the battery pack accurately.

Which discharge pathways affect lithium-ion migration and safety?

To explore reliable, safe, and rapid discharge methods, this research systematically investigated the effects of three discharge pathways, namely, water electrolysis, electrolyte leakage, and short-circuit exothermic discharge, on lithium-ion migration and safety.



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Lithium battery charging and discharging principle

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