

# Battery negative electrode material processing and crushing

What is negative electrode material in lithium ion battery?

The negative electrode material is the main body of lithium ion battery to store lithium, so that lithium ions are inserted and extracted during the charging and discharging process.

How to reduce the risk in the crushing process of used lithium batteries?

To reduce the risk in the crushing process of used lithium batteries, 10 used lithium batteries (weighing approximately 1 kg) were first immersed in a NaCl solution with a mass fraction of 20 % and fully discharged for 24 h.

Can a hammer crusher crush lithium batteries?

Previous studies have been conducted using shredders or hammer crushers to crush waste lithium batteries, but it was found that the use of mechanical crushing would lead to low efficiency of the subsequent separation and extraction of metals and high energy consumption.

Is shredding a single crushing method?

However, due to a large amount of entrainment in the shredder, the composite product cannot enter the subsequent sorting process, so shredding is not feasible as a single crushing method. When using the shredding + hammer-type two-step crushing method to crush the waste lithium battery, the total production capacity was 36 kg/h.

Mechanical crushing and sorting refer to directly destroying the metal shell of the spent battery by external crushing force, and at the same time assisting in the separation and enrichment of ...

The study shows that the two-step crushing method could achieve 100 % dissociation of all battery components, and the crushed products can be recycled according to ...

For the deep processing of waste lithium batteries, power lithium-ion batteries, and secondary processing and utilization of battery positive and negative electrode materials, a crushing and sorting equipment applied to waste lithium ...

Disclosed is a crushing, grinding and collecting device for a negative electrode material of a lithium-ion battery, the device comprising a crushing device and a grinding and collecting device. The crushing device comprises a feeding box (1), a loading box (6), a crushing box (7) and a screen plate (10), wherein the crushing box is welded onto two supporting frames (18); the ...

1. wo2018119660 - crushing, grinding and collecting device for negative electrode material of lithium-ion battery

2 ???&#0183; High-throughput electrode processing is needed to meet lithium-ion battery market demand. This Review discusses the benefits and drawbacks of advanced electrode ...

Raw materials that do not meet the size requirements are filtered out effectively by means of the first separating plate and the second separating plate, so as to prevent caked raw materials ...

Battery electrodes are the two electrodes that act as positive and negative electrodes in a lithium-ion battery, storing and releasing charge. ... which can effectively increase the compacting density of positive and negative electrode materials [103], ... High-throughput and high-performance lithium-ion batteries via dry processing. Chem. Eng ...

This work presents the individual recycling process steps and their influence on the particle and slurry properties. The aim is to assess whether the recyclate is ...

Kraytsberg, A. and Y. Ein-Eli, Conveying advanced Li-ion battery materials into practice: the impact of electrode slurry preparation skills. ... From materials to cell: state-of-the-art and prospective technologies for lithium-ion battery electrode processing. Chemical Reviews, 2022, 122, 903-956.

2 ???&#0183; The present study investigates high-magnesium-concentration (5-10 wt.%) aluminum-magnesium (Al-Mg) alloy foils as negative electrodes for lithium-ion batteries, providing a ...

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