New Energy Battery Foreign Matter Control Solution

How can a battery management system improve the safety of foreign matter defect cells?
Undoubtedly,online monitoringof the operational status of the cell through the battery management system (BMS),to some degree,could reduce incidences of safety accidents induced by the foreign matter defect cell. However,it is more important to conduct quality control and improve the detection rate of defect cells during manufacturing.

What is the evolution mechanism of foreign matter defect in a battery?
Through intentionally making defect batteries,aging experiments,and characterization analysis at different stages,the evolution mechanism of foreign matter defect in the battery is revealed. The self-induced internal-short-circuit fusing and sudden spontaneous combustionof the battery under non-abuse are all reproduced.

Does foreign matter cause battery damage?
The battery damage situation caused by the foreign matter of different particle sizes during the battery production process is revealed. Through the non-abuse aging cycle test, we reproduced the SSC and the self-induced ISC fusing of lithium-ion cells. Then through the analysis of the test data, we propose the early warning method for SSC.

Does the detection rate of foreign matter defects improve battery quality?
Experiment results show that the proposed method's detection rate is improved significantly. The increase in the detection rate of foreign matter defects is beneficialto improving battery quality and safety. 1. Introduction

How to avoid the generation of batteries containing foreign matter?
In order to avoid the generation of batteries containing foreign matter as much as possible, battery manufacturers need to establish a complete and strict raw material detection mechanism, workshop cleaning mechanism, insulation withstand voltage (Hi-pot) test mechanism, and self-discharge test mechanism.

How to reduce the outflow of foreign matter defect cells?
In order to reduce the outflow of such foreign matter defect cells,the production line universally adopted the K -value test process. In the traditional K -value test,the detection threshold is determined empirically,which has poor dynamic characteristics and probably leads to missing or false detection.

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Aluminum foil is widely used for the soft pack of lithium batteries in consumer electronics, new energy vehicles, and energy storage applications. HDM"s battery soft pack foil protects personal safety, and in the event of a safety hazard the soft pack battery will at most bulge and crack, rather than explode like a steel-cased aluminum-cased battery cell. Get Free Sample. Battery ...

In this paper, we propose a data-driven detection method for foreign matter defect in lithium-ion batteries. In contrast to the existing battery diagnosis and fault detection methods that use battery operating data as input, we conducted the experiments and implanted foreign matter defects into batteries on a real battery pilot ...

At the battery production site, the battery products are easy to mix with foreign matters, including electrode slurry mixed with metal impurities; Cutting burrs or metal chips generated during pole cutting; When the electrode piece is cut off in the winding process, burrs or metal foreign matter particles are mixed into the iron core. Welding ...

Many batteries of electric vehicles and energy storage power stations around the world experienced sudden spontaneous combustion accidents under normal use, and their historical operating data is generally normal. We find that the foreign matter mixed into the battery during the manufacturing process is one of the main culprits of the sudden spontaneous ...

For example, the 2021 Bipartisan Infrastructure Law allocated funding for the broad category of "advanced batteries," under which the U.S. Energy Department can easily fund both next ...

The increase in the detection rate of foreign matter defects is beneficial to improving battery quality and safety. During the manufacturing process of the lithium-ion battery, metal foreign matter is likely to be mixed into the battery, which seriously influences the safety performance of the battery.

At present, FPC solutions have become the most important choice for most new energy vehicle models. FPC is integrated into CCS (Cells Contact System). CCS products are composed of ...

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