Battery peeling technology

How does a peeling electrode work?
The electrode is bonded to two acrylic substrates using liquid formula glue for one side and gel formula glue for the other. Compared with conventional peeling tests using double-sided tape, the major advantage of this new specimen is that it realizes conducting shear tests.

What are the mechanics of a peeling test?
The mechanics of the common peeling tests have been well studied. An equilibrium theory to determine the energy release rate between elastic solids was developed by Kendall [19, 20]. Based on two quite different approaches, Gent and coworkers [21, 22] investigated the dependence of the peel force on the peeling angle.

What is peel test?
Peel test is a conventional method in battery industry for ranking the adhesion strength of electrodes,which separates the active material coating from the current collector using bond tapes.

Why does peeling strength increase linearly with energy release rate?
As illustrated in Fig. 3, the peeling strength increases linearly with the energy release rate. The reason is as follows: Based on the energy balance approach, the larger the energy release rate is, the larger the peeling force is, which corresponds to a larger peeling strength, needed to break the interface.

Does peeling angle affect strain energy stored in a current collector?
Case 1: The peeling test is conducted at a zero-degree peeling angle and the strain energy stored in the current collector is not taken into consideration. According to Eq. (3),we can easily find that the displacement in the direction of the peeling force decreases as the peeling angle decreases.

Can self-healing functionalities improve the performance of battery cells?
Like in most systems/applications degradation processes/aging cannot be avoided since battery cells operate in different environments. Self-healing functionalities have been proved in different areas of material science and they can significantly improve the performance of battery cells.

Recycling spent lithium-ion batteries (LIBs) is of great significance for both environmental protection and resource recycling. However, there are only a few studies on the ...

A cylindrical and lithium battery technology, applied in the field of cylindrical lithium battery peeling method and equipment, can solve the problems of slow mechanism rhythm and low peeling efficiency, and achieve the effects of improving efficiency, saving tact, and maintaining sharpness.

The invention discloses an electroplating peeling recovery technology of a lithium battery electrode. The electroplating peeling recovery technology comprises the following steps: disassembling and removing a

positive plate and a negative plate; taking the positive plate or the negative plate tab as a cathode, taking the negative plate tab as an anode, introducing DC ...

Solvent materials are dried and collected by heating process, plastic material and battery separator can be collected according to requirement. Vibration separation and air separation are applied to remove heavy impurity material of the battery casing and release black mass for ...

Owing to the multilayer structure of lithium-ion battery cathode materials, rapid Joule heating could generate thermal stress at the interface, offering the necessary force for ...

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A technology for lithium batteries and cylinders, applied in the field of peeling methods and systems for cylindrical lithium batteries, can solve the problems of low manual removal efficiency and easy damage to the nickel-plated layer on the surface of the battery, and achieve the effect of improving the peeling efficiency

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The insulating layer peeling device for a pouch-type battery cell comprises: a vacuum adsorption unit which sucks ambient air to adsorb the insulating layer to which a lower release paper and...

Peel test is a conventional method in battery industry for ranking the adhesion strength of electrodes, which separates the active material coating from the current collector using bond tapes. Park, et al.10 and Lee, et al.11 applied the peel test with bond tapes to evaluate the electrodes with various binders

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