

Are lithium-ion batteries patentable?

To be very clear: This especially means that the lithium-ion battery category does not contain any patent families tagged as solid-state battery inventions. The fourth step's purpose was to add patent data related to redox-flow and nickel-hydrogen batteries to the dataset.

Can a patent proxy predict the price of lithium-ion batteries?

Kittner et al. and Ziegler and Trancik employed the patent proxy in their efforts to model the forces driving the prices of lithium-ion batteries, and found that cumulative patent filings is the best predictor of real prices scaled by energy capacity.

What is a battery patent?

The claims in these types of patents typically list specific formulation requirements, including details about the individual components in their initial form (raw materials) or upon assembly of the battery (e.g., concentration of electrolyte salt).

Are lithium-ion technologies the future of energy storage?

The trigram analysis overall confirms the prominence of lithium-ion technologies and the nature of the most relevant alternative technological paths. But it also hints at the non-linearity of progress towards safer and more sustainable forms of energy storage.

Are battery recycling technologies based on a global patent analysis?

**Conclusions** This study conducted a comprehensive global patent analysis on battery recycling technologies, focusing on secondary batteries across Korea, China, and the United States. The findings reveal significant differences in patent activities and technological focuses among these countries.

How to recycle lithium ion batteries?

In the application of mineral treatment for battery recycling, mineral treatment processes such as grinding, sieving, and self-separation are important to recycle lithium-ion batteries, but these processes should pay attention to the loss and high cost of valuable battery parts.

When filing a patent, it can be helpful to identify the ways to obtain proof of infringement from a fully assembled battery. This may include documenting methods to separate components of interest, analytical ...

Annual count of patents for a) the total lithium-ion battery cell production, b) the total production according to the three clusters: Component production (I), cell assembly (II) and conditioning ...

Employing the T& D-Mechanism and analyzing patent claims, we identify the clear developmental phases of the LBM-Tra: an initial technology start-up phase, a high-growth phase driven by market demands and policy

influences, and a decline phase shaped by global economic challenges.

Justia Patents US Patent for Advanced lithium (LI) ion and lithium sulfur (LI S) batteries Patent (Patent # 11,133,495) Advanced lithium (LI) ion and lithium sulfur (LI S) batteries . Jul 29, 2020 - LytEn, Inc. This disclosure provides a lithium (Li) ion battery that includes an anode, a cathode positioned opposite to the anode, a porous separator positioned between ...

The number of patent filings in 2022 for battery recycling focused on lithium was almost 200% higher than for nickel, cobalt or copper, intellectual property law firm Appleyard Lees revealed in the fourth annual edition of its Inside Green Innovation: Progress Report.

The aim of this article is to analyze trends in patenting that might result in innovations for three energy technologies: thermochemical conversion of biomass (Bioenergy), lithium-ion battery...

When filing a patent, it can be helpful to identify the ways to obtain proof of infringement from a fully assembled battery. This may include documenting methods to separate components of interest, analytical techniques compatible with limited quantities of materials, and strategies to address irreversible processes. For instance, a claim ...

As the largest consumer of lithium batteries among new energy vehicle manufacturers, the head of BYD has emphasized that lithium battery manufacturers should focus on enhancing their manufacturing technologies to increase both production capacity and quality, instead of annually raising lithium battery prices, which would result in increased costs for ...

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LITHIUM-ION BATTERIES ... configuration for batteries in a patent from 1969.<sup>17</sup> At the same time, John Newman developed a theory for ion transfer in electrochemical cells.<sup>18</sup> Figure 3. Carbonate solvents used for batteries. A conference held in Belgirate, Italy, arranged by Brian C. H. Steele in 1972 came to be particularly important to the development. This meeting gathered ...

An improved lithium-ion or lithium-polymer battery that is capacity-fade resistant. The battery includes an anode comprised of graphite where density of the graphite is in a range from 1.2 to 1.5 g/c<sup>3</sup>; and the battery further has a cathode that is comprised of LiNiO<sub>2</sub> present at a density in a range from 3.0 to 3.3 g/c<sup>3</sup>. The battery also includes an electrolyte and a separator between ...

A lithium battery incorporating tungsten disulfide nanotubes is a battery which improves upon the capacitance and charge times of traditional lithium batteries through the inclusion of tungsten disulfide nanotubes. For a traditional galvanic cell including an anode, a cathode, a porous membrane, a quantity of electrolyte solution and an electrically insulated enclosure, the ...

Lithium-ion and other lithium-based battery technologies have also surged, whilst lead-acid and rechargeable alkaline batteries" share in battery patenting activity has decreased over the overall time frame. Through patent counts and content analysis we observe patterns of less-toxicity and signs of technological diversification which are ...

The tests described in the patent US9431677 show that the use of these copolymers as polymer solid electrolyte in a lithium metal battery leads to an energy storage device having excellent performance at low ...

This study provides a comprehensive analysis of global patent trends in battery recycling, focusing on secondary batteries and related technologies across Korea, China, and ...

Employing the T& D-Mechanism and analyzing patent claims, we identify the clear developmental phases of the LBM-Tra: an initial technology start-up phase, a high ...

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