

Polyimide energy storage materials





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High-temperature energy storage polyimide dielectric materials: ...

This review expounds on the design strategies to improve the energy storage properties of polyimide dielectric materials from the perspective of polymer multiple structures, including ...

[\(PDF\) Polyimides: Promising Energy-Storage Materials](#)

This exploration of polyimides aims to provide a pathway for developing high-performance, renewable electrodes from bio-sourced materials, contributing to ...



Layer stacked polyimide with great built-in electronic field for fast

As a representative category of carbonyl compounds, polyimides (PIs) are characterized by their high energy storage capacity, adjustable redox voltage, and excellent ...



High-temperature energy storage polyimide dielectric materials: ...

This review expounds on the design strategies to improve the energy storage properties of polyimide dielectric materials from the



perspective of polymer multiple structures, ...



[Polyimides: Promising Energy-Storage Materials](#)

Plastic batteries: Polyimides are proposed as cathode materials for rechargeable lithium batteries. Although they are regarded as insulators, ...

Dual-functional polyimide-based phase change composite ...

To enhance the building's indoor temperature regulation capability and reduce the energy consumption of the building, a series of functional composite materials with solar ...



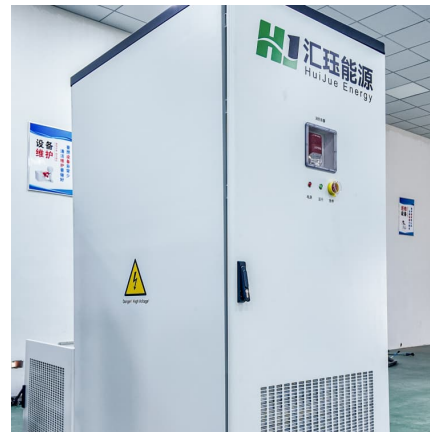
AI-assisted discovery of high-temperature dielectrics ...

Dielectrics are essential for modern energy storage, but currently have limitations in energy density and thermal stability. Here, the ...



Development and characterization of nanoceramic reinforced ...

Based on the available literature, under elevated temperature conditions, polyimide matrix proven to be a candidate matrix on developing polymer nanocomposite materials for high-temperature ...



[High-temperature polyimide dielectric materials for ...](#)

Dielectric capacitors with a high operating temperature applied in electric vehicles, aerospace and underground exploration require dielectric materials ...

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[Enhanced high-temperature energy storage in semi ...](#)

Polyimide (PI) is a promising candidate for high-temperature energy storage, yet it suffers from charge transfer complexes (CTCs) formation ...



Metal-organic cage crosslinked nanocomposites with enhanced ...

Hence, developing dielectric materials with high-temperature resistance and superior energy storage density has gained significant research interest 3, 14.



Polyimide-Based Dielectric Materials for High-Temperature

Polyimide (PI) has received great attention for high-temperature capacitive energy storage materials due to its remarkable thermal stability, relatively high breakdown strength, strong ...

Machine learning-accelerated discovery of polyimide derivatives ...

Using a multi-objective optimization strategy to screen over 200,000 polyimide derivatives, eight optimal molecules with superior properties (e.g., $E_g > 4.0$ eV, $T_g > 300$ °C, ...



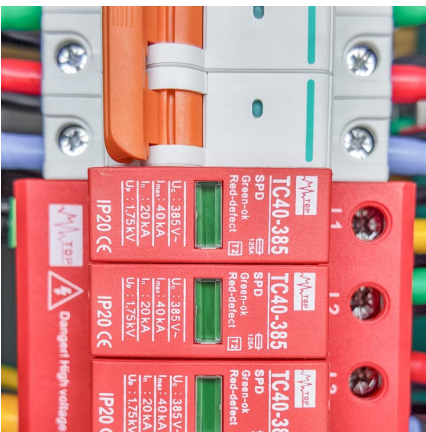


[Polyimides as Promising Materials for Lithium-Ion](#)

Polyimides (PIs) as coatings, separators, binders, solid-state electrolytes, and active storage materials help toward safe, high-performance, ...

Enhanced High-Temperature Energy Storage in a Polyimide ...

Herein, a novel strategy is proposed for constructing a polyimide (PI) alloy by incorporating high-bandgap copolymer of perfluoropropyl perfluorovinyl ether and ...



High-temperature polymer composite capacitors with high energy ...

Polymer dielectrics are key for capacitors in energy applications but are hard to improve for high temperatures. This work uses artificial intelligence to design fillers with a large ...

[Triarylamine-based polyimides enable smart](#)

Color-to-color switching electrochromic polymers with a high contrast ratio and the additional ability to store energy are attractive for applications in smart display devices and ...



Hydrophobic and Antimicrobial Polyimide based Composite ...

Multifunctional polyimide based composite phase change materials apply in energy storage, with hydrophobic, acid resistance, self-cleaning and antimicrobial performance.



Enhanced high-temperature energy storage in semi-aromatic polyimides

Polymer-based dielectric capacitors for extreme environments require materials with exceptional electrical insulation. Polyimide (PI) is a promising candidate for high ...



Cost-effective strategy for high-temperature energy storage ...

Subsequently, the polyimide film coated with a 100 nm SiO₂ inorganic layer was infused with small quantities of SrTiO₃ nanoparticles, leading to a breakdown field strength of ...





Alter the charge transport orientation of aromatic polyimide by

Aerospace, electric vehicles, and other particular application scenarios place higher demands on the applicable electric field and temperature of capacitors. Polyimide, as the most ideal and ...

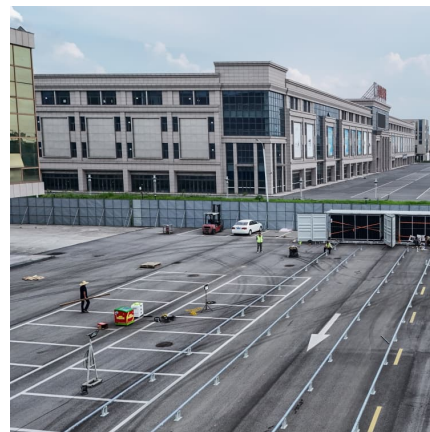


Multiple enhancement effects of dipoles within polyimide cathode

Polyimide (PI) has been recognized as a potential organic cathode for Li-ion batteries (LIBs) due to its programmable structural design, high theoretical capacity, and ...

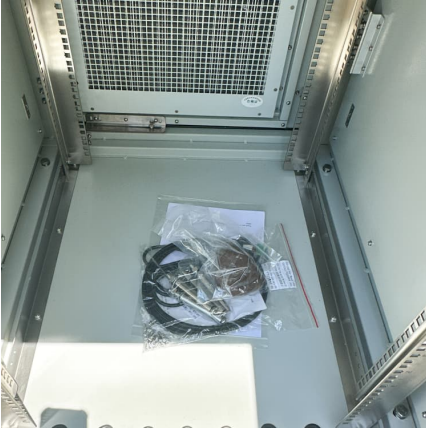
Polyimides as Promising Materials for Lithium-Ion Batteries: A ...

Polyimides (PIs) as coatings, separators, binders, solid-state electrolytes, and active storage materials help toward safe, high-performance, and long-life lithium-ion batteries ...



High-temperature energy storage polyimide dielectric materials: ...

Polyimide (PI) is considered one of the most important dielectric materials that can be applied to the high-temperature energy storage field due to its excellent mechanical ...



Hydrophobic and antimicrobial polyimide based composite phase ...

Multifunctional polyimide based composite phase change materials apply in energy storage, with hydrophobic, acid resistance, self-cleaning and antimicrobial performance.



[?????????????:?????????,Materials Today Energy ...](#)

High-temperature energy storage polyimide dielectric materials: polymer multiple-structure design Polymer dielectrics have been proved to be critical materials for film capacitors with high ...

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