

# 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 ...



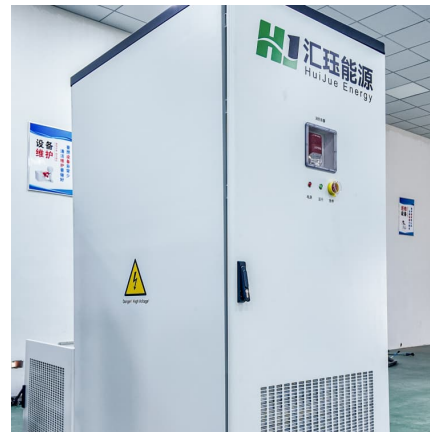
### **AI-assisted discovery of high-temperature dielectrics ...**

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, ...



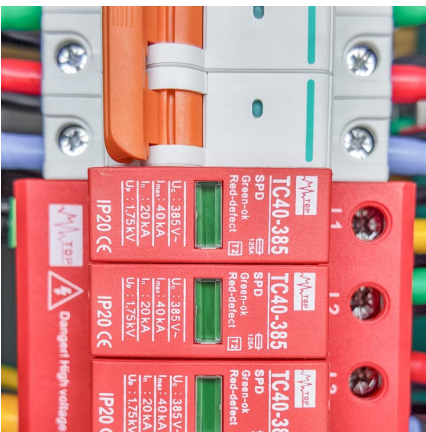


### [Polyimides as Promising Materials for Lithium-Ion](#)

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 SiO<sub>2</sub> inorganic layer was infused with small quantities of SrTiO<sub>3</sub> 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 ...

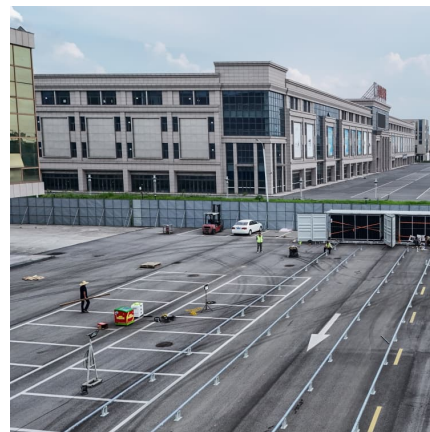


### **Multiple enhancement effects of dipoles within polyimide cathode**

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 ...

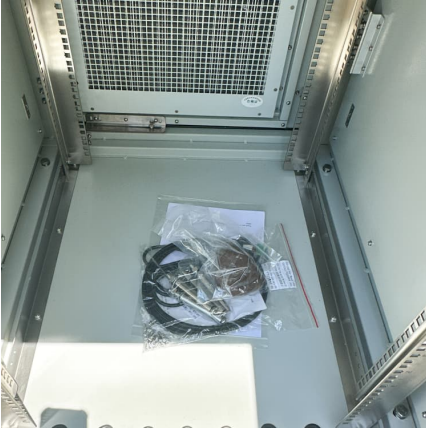
### **Polyimides as Promising Materials for Lithium-Ion Batteries: A ...**

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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