

ContainerPower Energy Solutions

Features of flexible energy storage devices



Overview

The rapid evolution of wearable and bio-integrated electronics has intensified the demand for high-performance, deformable energy storage systems that can seamlessly conform to the human body while maintaining electrochemical efficiency and mechanical durability.

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FESDs can be classified into three categories based on spatial dimension, all of which share the features of excellent electrochemical performance, reliable safety, and superb flexibility.

This review is intended to provide strategies for the design of components in flexible energy storage devices (electrode materials, gel electrolytes, and separators) with the aim of developing energy storage systems with excellent performance and deformability.

In this review, we will summarize the introduction of biopolymers for portable power sources as components to provide sustainable as well as flexible substrates, a scaffold of current collectors, electrode binders, gel electrolyte matrices, separators, or binding scaffolds for whole devices.

This review critically synthesizes recent advancements in flexible energy storage devices (FESDs), emphasizing cutting-edge developments from 2022 to 2025.

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