

# Sulfide electrodes for flow batteries



## Overview

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This paper reviews the recent material innovations in sulfide-based solid electrolytes, focusing on enhancing their ionic conductivities based on an understanding of their crystal structures. Polysulfide-based redox flow batteries (PSRFBs) have emerged as an innovative solution for large-scale energy storage technology owing to their high energy density and low cost. In this study, we report a novel.

## Sulfide electrodes for flow batteries

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### Synergy of single atoms and sulfur vacancies for advanced

Aqueous redox flow batteries (RFBs) incorporating polysulfide/iodide chemistries have received considerable attention due to their safety, high scalability, and cost-effectiveness.

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### Carbon felt modified with copper sulfide nanoflowers as a high

In this study, we report a novel copper sulfide (CuS) nanoflower-modified carbon felt (CuS-CF) electrode for polysulfide-ferrocyanide redox flow batteries (PFRFBs).



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### Towards a Practical Use of Sulfide Solid Electrolytes in Solid-State

Solid-state batteries are considered a promising next generation battery technology due to their potential for increased safety and energy density. 1 Amongst the solid electrolyte (SE) ...

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### Understanding Interfaces at the Positive and Negative Electrodes on

The outcomes of this work aim to facilitate the design of sulfide solid-state batteries and provide methodological inputs for battery aging assessment.

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### Advancements for aqueous polysulfide-based flow batteries: ...

Polysulfide-based redox flow batteries (PSRFBs) have emerged as an innovative solution for large-scale energy storage technology owing to their high energy density and low cost. These ...

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### Functionalized sulfide solid-state electrolytes for advanced batteries

This review is designed to provide fundamental understanding and facilitate benign development of functionalized sulfide SSEs, and provides theoretical guidance and technical ...

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### Sulfide-Based Anode-Free Solid-State Batteries: Key Challenges and

We systematically evaluate recent strategic advances in addressing these challenges, including metal seed



coatings, conversion reaction-based compounds, and carbon-based interlayers.

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### **Towards practical all-solid-state batteries: structural engineering**

Sulfide-based solid electrolytes have emerged as pivotal components for the advancement of next-generation all-solid-state batteries, owing to the battery safety and higher energy density. This paper ...

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### **Unveiling the power of sulfide solid electrolytes for next-generation**

Sulfide solid electrolytes are promising materials for next-generation all-solid-state lithium batteries due to their high ionic conductivity, mechanical properties, and compatibility with advanced ...

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### **Polysulfide-based redox flow batteries with long life and low**

To exploit low-cost and high-capacity polysulfide flow batteries with industrial-

relevant cycling stability, we develop a charge-reinforced ion-selective membrane to retain

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