

A-Core Container

CrFe₂ flow battery commercialization



Overview

Can aqueous sulfur-based redox flow batteries be commercialized?

Aqueous sulfur-based redox flow batteries (SRFBs) are promising candidates for large-scale energy storage, yet the gap between the required and currently achievable performance has plagued their practical applications. Here, we propose several engineering strategies towards SRFB commercialization.

Are flow batteries the future of energy storage?

Realizing decarbonization and sustainable energy supply by the integration of variable renewable energies has become an important direction for energy development. Flow batteries (FBs) are currently one of the most promising technologies for large-scale energy storage. This review aims to provide a comprehensive ChemSocRev - Highlights from 2023.

Are redox flow batteries suitable for large-scale energy storage?

Redox flow batteries are prime candidates for large-scale energy storage due to their modular design and scalability, flexible operation, and ability to decouple energy and power. To date, several different redox couples are exploited in redox-flow batteries; some are already commercialized.

What are the different types of flow batteries?

There are currently three main types of flow battery: redox flow batteries (RFBs), hybrid flow batteries and membraneless flow batteries. RFBs are the most common type, they are commercially proven and offer the most advanced technology of the flow batteries.

Are flow batteries a good alternative to LFP?

For long-duration applications, an attractive alternative option to LFP is the flow battery. Flow batteries are not new; the first flow battery was patented in 1880 (see the figure below), a zinc-bromine variant which had multiple

refillable cells.

What does Cris mean in a redox flow battery?

Yellow circles represent the polysulfide ions; CRIS represents the charge-reinforced ion-selective membrane. SRFBs, sulfur-based redox flow batteries. Membranes in SRFBs have a crucial role, which is to separate the anode and cathode compartments while allowing ion transport.

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