Climbing Alkaline Flow Battery

Here, we report a stable and cost-effective alkaline-based hybrid polysulfide-air redox flow battery where a dual-membrane-structured flow cell design mitigates the sulfur crossover issue.

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, ...

We demonstrate a rechargeable aqueous alkaline zinc-sulfur flow battery that comprises environmental materials zinc and sulfur as negative and positive active species.

This study presents the design and demonstration of an alkaline Sn-Fe ARFB with K 4 [Fe (CN) 6] and K 2 Sn (OH) 6 in the catholyte and anolyte respectively, achieving a high-capacity and low-cost ...

In this research, we propose an efficient electrolyte additives strategy to improve the zinc deposition behavior, inhibit the growth of zinc dendrites, and prolong the cycling life of zinc-based ...

A stable 6-coordinate Fe III compound K [Fe III (THEED)] (H 4 THEED = N,N,N?,N? -tetrakis (2-hydroxyethyl)ethylenediamine) was used as the anodic active material for all-iron alkaline ...

We constructed an all-alkaline redox flow battery by coupling MnO 4- /MnO 42- with Alizarin to demonstrate the proof-of-principle. The RFB has a stable cycling life and a high-capacity ...

The system is tested using an alkaline flow battery consisting of ferrocyanide and 2,6-dihydroxyanthraquinone, improving the energy capacity retention from 0.27 % cycle-1 ...

In this paper, an robust anolyte Fe (TEA-2S) is reported, which is formed by chelating iron ions with the sulfonate-enriched ligand (TEA-2S) in alkaline environment.

Among them, iron-based aqueous redox flow batteries (ARFBs) are a compelling choice for future energy

storage systems due to their excellent safety, cost-effectiveness and scalability.

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