Iodine flow battery life

Aqueous zinc-iodine flow batteries show potential in large-scale storage but face water imbalance-induced instability. Here, authors develop a tailored ionic-molecular sieve membrane that selectively ...

Herein, we develop a tailored ionic-molecular sieve membrane to regulate the transport behaviors of water/hydrated ion clusters, enabling the electrolyte balance by precise size sieving effects.

This electrolyte engineering strategy, which stabilizes the anode within an advanced cathode chemistry, paves the way for highly durable and practical high-energy flow batteries.

With a focus on practical application, this work identifies key challenges in the field and proposes comprehensive optimization strategies, aiming to provide guidance for the design of high ...

A zinc-iodine flow battery (ZIFB) with long cycle life, high energy, high power density, and self-healing behavior is prepared. The long cycle life was achieved by employing a low-cost porous ...

Compared with lithium-ion batteries, aqueous zinc-based systems offer considerable advantages in terms of resource abundance and thermal stability. Among these, iodine-based ...

This work offers insights into controlling water transport behaviors for realizing long-life flow batteries.

Zinc-iodine redox flow batteries are considered to be one of the most promising next-generation large-scale energy storage systems because of their considerable energy density, ...

The key point for the improvement of cycle life and CE of AZIBs is to inhibit the diffusion/shuttle of polyiodide anions, thereby eliminating their devastating effects on Zn anodes.

Web: https://upstreamjhb.co.za