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Title: Vanadium flow battery decay

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Abstract: As a promising large-scale energy storage technology, all-vanadium redox flow battery has garnered considerable attention. However, the issue of capacity decay significantly...

Glucose, sucrose, D (+)-xylose and β -lactose monohydrate are selected as additives relative to the negative electrolyte of Vanadium Redox Flow Battery (VRFB), with the ...

Rebalancing and regeneration are essential to counteract the evolution of electrolyte imbalance in flow batteries (FBs). These effects have different physical and ...

Capacity decay due to vanadium cross-over is a key technical challenge for Vanadium Redox Flow Batteries (VRFBs). To mitigate this effect this study investigates an ...

This review provides comprehensive insights into the multiple factors contributing to capacity decay, encompassing vanadium cross-over, self-discharge reactions, water ...

In this work, the evolution of discharged capacity and electrolyte volume variation were firstly investigated adopting commercial electrolyte for hundreds of charge-discharge ...

The definition of a battery is a device that generates electricity via reduction-oxidation (redox) reaction and also stores chemical energy (Blanc et al., 2010). This stored ...

In order to enhance battery performance and extend its service life in a simple yet effective manner, this study constructs a 2D model that takes into account the factors ...

Nafion series membranes are widely used in vanadium redox flow batteries (VRFBs). However, the poor ion selectivity of the membranes to vanadium ions, especially for V^{2+} , results in a ...

To extend service life, improve energy efficiency, and reduce the frequency of maintenance tasks such as electrolyte rebalancing and ion concentration adjustment, extensive research has ...

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