

Rwanda Flow Battery Project





Overview

What is a flow battery?

RFB are an energy storage system that utilizes redox reactions to store and release energy. An energy storage device that follows these types can be considered a flow battery for a general comparison.²⁷ (a) A minimum of one reversible oxidation-reduction reaction must occur.

Are redox flow batteries a viable solution for large-scale energy storage?

Redox flow batteries (RFBs) have emerged as a promising solution for large-scale energy storage due to their inherent advantages, including modularity, scalability, and the decoupling of energy capacity from power output. These attributes make RFBs particularly well-suited for addressing the challenges of fluctuating renewable energy sources.

What is the discharge capacity of a Zn-Mn RFB battery?

This battery configuration achieved a discharge capacity of 15 mA cm^{-2} and a gravimetric energy density of 153 mA h g^{-1} , maintaining an average discharge voltage exceeding 1.2 V. In addition to being highly stable, Zn-Mn RFBs are low in material costs and have improved electrochemical reversibility.

What is a VRFB electrolyte pump?

A key characteristic of VRFB is the cyclic pumping of electrolytes through the battery (stack) during operation. Consequently, electrolyte viscosity plays a crucial role in determining electrolyte's even distribution within the battery and the pump's energy consumption.



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