

What are zinc-bromine flow batteries?

In particular, zinc-bromine flow batteries (ZBFs) have attracted considerable interest due to the high theoretical energy density of up to 440 Wh kg⁻¹ and use of low-cost and abundant active materials [10, 11].

Are zinc-bromine flow batteries suitable for large-scale energy storage?

Zinc-bromine flow batteries (ZBFs) offer great potential for large-scale energy storage owing to the inherent high energy density and low cost. However, practical applications of this technology are hindered by low power density and short cycle life, mainly due to large polarization and non-uniform zinc deposition.

Can sodium sulfamate scavenger zinc-bromine flow batteries?

Zinc-bromine flow batteries face challenges from corrosive Br₂, which limits their lifespan and environmental safety. Here, the authors introduce sodium sulfamate as a Br₂ scavenger, enabling a more durable and higher-energy-density Zn/Br flow battery suitable for large-scale operation.

What is a Zn/Br flow battery?

We have developed a Zn/Br flow battery, paired with a Zn anode, that outperforms traditional Zn/Br flow batteries in energy density (152 Wh l⁻¹ versus 90 Wh l⁻¹) and cycle life (>600 versus 30 cycles), using a sulfonated polyetheretherketone membrane. We assembled a 5-kW stack that operated stably for over 700 cycles (~1,400 h).

Zinc-bromine flow batteries promise safe, long-duration storage for renewable grids. Explore 2025-2030 drivers, key stocks, risks, use cases, and outlook.

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Redflow Limited, a publicly-listed Australian company (ASX: RFX), produces small 10kWh zinc-bromine flow batteries that tolerate daily hard work in harsh conditions.

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Zinc-bromine flow battery company

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