

Alkaline Flow Battery Science





Overview

Are alkaline zinc-based flow batteries suitable for stationary energy storage applications?

Alkaline zinc-based flow batteries are well suitable for stationary energy storage applications, since they feature the advantages of high safety, high cell voltage and low cost. Currently, many alkaline zinc-based flow batteries have been proposed and developed, e.g., the alkaline zinc-iron flow battery and alkaline zinc—nickel flow battery.

Are alkaline Zn-Fe flow batteries suitable for large-scale energy storage?

The alkaline Zn-Fe flow battery stably operated for over 500 h, achieving an EE of 86.3 % at 80 mA cm⁻². Alkaline zinc-based flow batteries (AZFBs) are considered one of the most promising candidates for large-scale energy storage owing to Zn abundance, cost effectiveness, intrinsic safety and eco-friendliness.

Can redox-active organic molecules be used in alkaline flow batteries?

The battery operates efficiently with high power density near room temperature. These results demonstrate the stability and performance of redox-active organic molecules in alkaline flow batteries, potentially enabling cost-effective stationary storage of renewable energy.

Are alkaline flow batteries safe?

We report an alkaline flow battery based on redox-active organic molecules that are composed entirely of Earth-abundant elements and are nontoxic, nonflammable, and safe for use in residential and commercial environments. The battery operates efficiently with high power density near room temperature.



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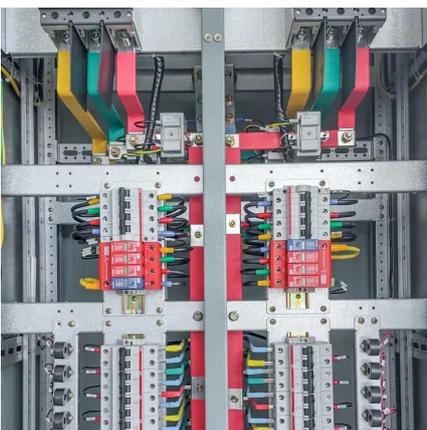


[Perspective of alkaline zinc-based flow batteries . Science](#)

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Sep 25, 2015 · Alkaline flow batteries can compensate for higher membrane resistance with higher voltage, leading to performance similar to that of their acidic counterparts. In addition, ...

[Alkaline zinc-based flow battery: chemical stability. ...](#)

May 23, 2024 · Alkaline zinc-based flow battery: chemical stability, morphological evolution, and performance of zinc electrode with ionic liquid Tianyong Mao*, Jing Dai*, Meiqing Xin, Deliang ...



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