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Amino Liquid Flow Battery

Overview

Are aqueous organic redox flow batteries biomimetic?

Learn more. Aqueous organic redox flow batteries (AORFBs) are a promising electrochemical technology for large-scale energy storage. We report a biomimetic, ultra-stable AORFB utilizing an amino acid functionalized phenazine (AFP).

Are aqueous organic redox flow batteries a viable alternative to natural anthraquinones?

Aqueous organic redox flow batteries face challenges due to the low solubility and stability of natural anthraquinones. Here, authors design a cysteine-functionalized aloe-emodin derivative with enhanced solubility and stability, achieving long-cycle life and high efficiency in alkaline flow batteries.

Are all-liquid flow batteries suitable for long-term energy storage?

Among the numerous all-liquid flow batteries, all-liquid iron-based flow batteries with iron complexes redox couples serving as active material are appropriate for long duration energy storage because of the low cost of the iron electrolyte and the flexible design of power and capacity.

Which flow battery is best for long-duration energy storage?

Compared with the hybrid flow batteries involved plating-stripping process in anode, the all-liquid flow batteries, e.g., the quinone-iron flow batteries , titanium-bromine flow battery and phenothiazine-based flow batteries , are more suited for long-duration energy storage.

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An amphoteric and hydrogen-bond-rich artificial ?-amino ...
May 21, 2025 · Herein, we report the design and synthesis of an artificial redox-active ?-amino acid molecule by functionalizing 1,5-dihydroxyanthraquinone with natural cysteine side group, ...

Artificial ?-amino acid based on cysteine ...
Mar 26, 2025 · Aqueous organic redox flow batteries face challenges due to the low solubility and stability of natural anthraquinones. Here, authors ...

Low-cost all-iron flow battery with high performance ...
Oct 1, 2022 · New flow batteries with low-cost have been widely investigated in recent years, including all-liquid flow battery and hybrid flow battery [12]. Hybrid flow batteries normally ...

Amino acid as a multifunctional electrolyte additive for ...
Feb 15, 2025 · Here we apply a single amino acid, L-leucine (Leu), as a liquid electrolyte additive to curtail these critical issues and enhance the performance of the battery. With an ultralow ...

Biomimetic Amino Acid Functionalized Phenazine Flow Batteries ...
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An amphoteric and hydrogen-bond-rich artificial ?-amino ...
May 21, 2025 · Organic redox flow batteries face solubility and stability challenges. Here, authors develop Cys-DHAQ, a redox molecule whose zwitterionic structure and hydrogen bonding ...

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Make it flow from solid to liquid: Redox-active electrofluids ...
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Liquid Flow Batteries: Principles, Applications, and Future ...

Jun 16, 2024 · Abstract. This paper aims to introduce the working principle, application fields, and future development prospects of liquid flow batteries. Fluid flow battery is an energy storage ...

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Make it flow from solid to liquid: Redox ...

Apr 11, 2025 · This includes redox-flow batteries that involve an aqueous solution containing dissolved redox-active ions (36) and semi-solid ...

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