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Graphite electrode materials for flow batteries

Overview

Can graphite be used as a positive electrode for vanadium redox flow batteries?

Xiang Y, Daoud WA. Binary NiCoO 2 -modified graphite felt as an advanced positive electrode for vanadium redox flow batteries.

Which electrodes are used in flow batteries?

Currently, carbon-based porous electrodes, commonly graphite felt (GF), carbon felt (CF), carbon cloth (CC), and carbon paper (CP), are extensively employed in flow batteries due to its advantageous stability, excellent electrical conductivity, and superior corrosion resistance .

Can quaternary ammonium salt-modified graphite felt electrodes provide a high-rate redox flow battery?

Herein, we demonstrate a high-rate and ultra-stable vanadium redox flow battery based on quaternary ammonium salt-modified graphite felt electrodes. At a high current density of 200 mA cm−2, the constructed VRFB exhibited a superior cycling life of up to 1000 cycles.

Which graphite felt is a high-performance electrode for vanadium redox flow batteries?

Zhou HP, Xi JY, Li ZH, Zhang ZY, Yu LH, Liu L, Qiu XP, Chen LQ. CeO 2 decorated graphite felt as a high-performance electrode for vanadium redox flow batteries.

Graphite electrode materials for flow batteries

Modified Graphite Felt Electrodes for Iron-Chromium ...

High-entropy oxides feature stable single-phase structures, excellent overall stability, and high catalytic activity due to abundant active sites and tunable properties. ...

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Reduced graphene oxide/MXene hybrid decorated graphite ...

Abstract Vanadium redox flow battery (VRFB) is a highly suitable technology for energy storage and conversion in the application of decoupling energy and power generation. ...

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Multi-fractal Nanoporous Carbon Sphere ...

We report a novel electrode design based on sustainable fructose-derived porous carbon spheres (F-PCS) uniformly deposited on ...

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Graphite Felt Electrode Modified by ...

However, the conventional graphite felt electrodes usually possess inferior electrocatalytic activity for vanadium ion redox reactions, ...

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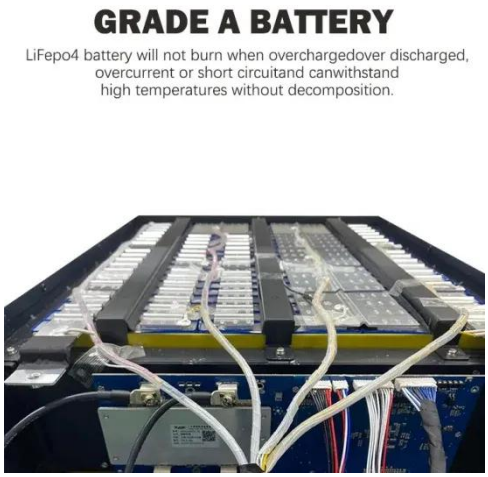

Reduced graphene oxide/MXene hybrid ...

Abstract Vanadium redox flow battery (VRFB) is a highly suitable technology for energy storage and conversion in the application ...

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Performance Study of Nickel Oxide Graphite Felts as Electrode Materials

Herein, the performance of nickel-oxide-modified graphite felts as electrode materials for Fe/Cr liquid flow batteries is investigated by combining density functional theory ...

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Multi-fractal Nanoporous Carbon Sphere-Decorated Graphite ...

We report a novel electrode design

based on sustainable fructose-derived porous carbon spheres (F-PCS) uniformly deposited on graphite felt (GF) through a simple ...

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Multiple-dimensioned defect engineering for ...

An ultra-homogeneous modification was used for multiple-dimensioned defect engineering of graphite felt electrodes for a vanadium ...

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High-performance graphite felt electrode loaded with ...

Abstract This study presents a cost-effective, high-performance electrocatalyst for vanadium redox flow batteries (VRFBs). Nickel tungstate (NiWO4) nanowires are synthesized ...

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Graphite Felt Decorated with Metal-Organic ...

Fabricating electrodes with high electrocatalytic efficiency is crucial for the commercial feasibility of vanadium

redox flow batteries ...

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NiMoO4 nanorods with rich catalytic sites in situ-modified graphite

Vanadium redox flow battery (VRFB) exhibits a great potential for application in large-scale and long-term energy storage systems due to its high safety, longevity, and ...

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Graphite Felt Decorated with Metal-Organic Framework ...

Fabricating electrodes with high electrocatalytic efficiency is crucial for the commercial feasibility of vanadium redox flow batteries (VRFBs). In this study, metal-organic ...

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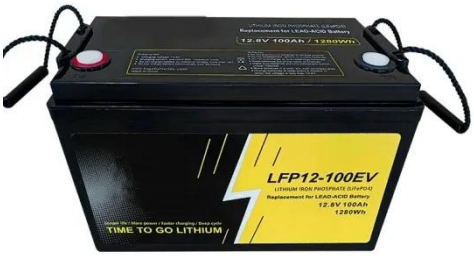
Bi-layer graphite felt as the positive electrode for zinc-bromine flow



The uniquely developed bi-layer structure plays crucial roles for flow batteries, that supporting layer with graphite fiber ensures the stability of flow battery while catalyst layer with ...

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Graphite Felt Electrode Modified by Quaternary Ammonium ...

However, the conventional graphite felt electrodes usually possess inferior electrocatalytic activity for vanadium ion redox reactions, vastly limiting the rate and lifespans ...

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Multiple-dimensioned defect engineering for graphite felt electrode ...

An ultra-homogeneous modification was used for multiple-dimensioned defect engineering of graphite felt electrodes for a vanadium redox flow battery. Graphite felt obtains ...

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