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# Characteristics of perfluorosulfonic acid ion exchange in flow batteries

Can perfluorosulfonic acid be used in proton exchange membrane fuel cells?

Investigations of Dongyue Series Perfluorosulfonic Acid Membranes for Applications in Proton Exchange Membrane Fuel Cells (PEMFCs).

Are perfluorosulfonic membranes suitable for vanadium redox flow batteries?

A series of perfluorosulfonic membranes is screened for application in vanadium redox flow batteries (VRFB): membranes of constant thickness 50  $\mu\text{m}$  with different ion-exchange capacities ranging from 0.56 to 1.15  $\text{moleq.g}^{-1}$ .

Why are perfluorinated sulfonic acid membranes less selective?

However, perfluorinated sulfonic acid (PFSA) membranes--the most widely used PEM--have ultimate limitations of low proton selectivity to other active species because of their wide and randomly connected proton channels.

What is perfluorosulfonic acid membrane (PFSA)?

Its main function in fuel cells is to isolate oxidants in the cathode and reduce agents in the anode while simultaneously conducting cations [11,12]. At present, perfluorosulfonic acid membrane (PFSA) is the most widely used and best-performing PEM in the current PEMFC market.

In materials science, the investigation of microstructures is of critical importance, as the macroscopic properties of materials are typically governed by their microstructural characteristics. This study establishes a ...

A proton exchange membrane (PEM) is a crucial component for the effective and stable operation of energy conversion and storage devices, such as fuel cells, water ...

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Perfluorosulfonic acid (PFSA) ionomers are widely used as an ion-conducting electrolyte in electrochemical energy devices, such as polymer-electrolyte fuel cells (PEFCs) ...

In particular, one of the most critical components in all-vanadium redox flow batteries, proton exchange membrane fuel cells and ion membrane chlor-alkali process devices is the ...

The microstructure of perfluorinated sulfonic acid proton-exchange membranes such as Nafion significantly affects their transport properties and performance in a vanadium ...

This study systematically investigated the physicochemical properties and proton exchange membrane fuel cell (PEMFC) performance of perfluorosulfonic acid (PFSA) membranes with different thicknesses, ...

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Abstract: Polymer ion-exchange membranes are featured in a variety of modern technologies including separation, concentration and purification of gases and liquids, ...

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