



TECHNOLOGY

Novel Membrane and Catalysts for Portable Alkaline Fuel Cells

OVERVIEW

Background

Proton exchange membrane fuel cells (PEMFC) have been extensively investigated for possible commercial use as a next generation power source. However, the high cost of PEMFC electrolyte membranes and catalysts has hindered development. Many scientists have therefore turned to alkaline polymer electrolyte fuel cells (APEFC) and tried to develop solid anion exchange membrane (AEM) electrolytes as an alternative. Unfortunately, conductivity and mechanical problems persist, preventing the APEFC from practical applications.

Innovative Technology

Researchers at the University of Maryland have developed a novel copolymer, named QPMBV (quaternized poly methyl methacrylate-co-butyl acrylate-co-vinylbenzyl chloride), which is more resistant to temperature and mechanical stress than previous versions of AEM technology. QPMBV possesses superior OH-anion conductivity, resulting in improved fuel cell performance.

Advantages

- Greater durability than previous AEM technology
- Increased conductivity

Applications

- Fuel cell technology
- Portable power sources

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Additional Information

INSTITUTION

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PATENT STATUS

Patent(s) pending

LICENSE STATUS

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CATEGORIES

- Chemical

EXTERNAL RESOURCES

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