

A New Polymer Electrolyte Membrane for Direct Methanol Fuel Cell Applications

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Direct Methanol Fuel Cells (DMFCs) are becoming increasingly attractive for portable power sources applications as they present the advantages of a reformer free system and of a cheap, portable and easily stored fuel, methanol. However, the overall performance of DMFCs is still limited by (1) the poor activity of the current anode electrocatalysts, (2) the low resistance to methanol crossover of the current proton conductive membranes, typically NAFION[®], and (3) the water management issues on the cathode side.

This work will present recent proton conductivity and methanol permeability results, as well as, direct methanol fuel cell performance of a new class of polymer electrolyte membrane developed by W. L. Gore & Associates. Attributes of the new membrane for DMFC applications will be compared to NAFION[®]117 membrane.