

## Synthesis and characterization of poly(arylene ether sulfone) ionomers for anion exchange membranes

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Proton exchange membrane fuel cells have been considered as an alternative generator to have high power density and reasonable energy density. The main problems with commercialization of PEMFCs are the high cost and low durability of their electrocatalysts. By switching from an acidic medium to a basic one, alkaline anion exchange membrane fuel cells are expected to solve the problems.

In this study, a series of poly(arylene ether sulfone)s containing positively charged pendant groups was prepared for anion conducting membranes. Poly(arylene ether sulfone)s have been used in the manufacture of synthetic polymer membranes due to its high durability over a broad pH and temperature range. The products were characterized by <sup>1</sup>H NMR, FT-IR, TGA. The anion exchange membranes formed from these polymers showed conductivities of about 40 mS/cm at 30 °C. The testing device was placed in a chamber to maintain 99% relative humidity.