

Anion-exchange membranes based on poly(arylene ether ketone)s with pendant imidazolium groups for alkaline fuel cell

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Anion exchange membranes for alkaline fuel cell were prepared by poly(arylene ether ketone)s (PAEKs) with pendant imidazolium groups that were synthesized. PAEKs with carboxylic acid groups activated reacted with 1-(3-Aminopropyl)imidazole which was employed. The pendant imidazolium groups were introduced and alkalinized to enhance ion conductivity of the membranes. The chemical structure of imidazolium poly(arylene ether ketone)s hydroxide (ImPAEKs-OH) synthesized was confirmed by ¹H NMR and FT-IR. DSC was used to characterize the thermal properties of the membranes. The anion conductivity, water uptake, ion-exchange capacity (IEC), mechanical properties of the ImPAEKs-OH membranes were investigated for their applications in alkaline fuel cells.