

**Imidazolium grafted poly(arylene ether ketone) based anion exchange membrane with enhanced durability for vanadium redox flow battery**

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The anion exchange membrane was synthesized from poly(arylene ether ketone) with 1-(3-aminopropyl) imidazole pendant groups (PAEK-API) for vanadium redox flow battery. The properties of the PAEK-API membranes were compared with those of Nafion1 117 membrane. All of the synthesized membranes showed higher ion exchange capacity but lower vanadium ion permeability than Nafion 117 membrane. Also, the membranes showed excellent chemical stability in electrolyte solution. During the 100 cycling tests, the PAEK-API 2.0 membrane showed higher coulombic and energy efficiencies than Nafion 117 membrane without any degradation.