

Synthesis of excellent chemical resistance and ion exchange capacity quaternarized poly (vinylimidazole-trifluoroethylmethacrylate-divinylbenzene) for redox flow battery

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A new partially fluorinated anion exchange membranes were synthesized using trifluoroethylmethacrylate (TFEMA), vinylimidazole (VI) and divinylbenzene (DVB) by solution polymerization. The structure of membranes was confirmed by $^1\text{H-NMR}$ and FT-IR spectrometer. The maximum value of the ion exchange capacity was 1.92 meq/g dry membrane. The chemical resistance of membranes were better than that of commercial membrane (AMX). The membrane properties such as water content, ion exchange capacity, electrical resistance, ion conductivity and chemical resistance were measured.