

Preparation of proton conducting membranes by sulfonated polymer blend

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Proton conducting membranes based on blend of sulfonated polysulfone (SPSf) and sulfonated poly(ether ether ketone) (SPEEK) were prepared and their characteristics were studied. So as to enable them to conduct protons, both polysulfone and poly(ether ether ketone) were sulfonated using trimethylsilyl chlorosulfonate (TMS CS) as sulfonation agent. Blend membranes were fabricated with various mixing ratios, and properties of each samples were investigated ; water uptake, ion exchange capacity, proton conductivity, morphology and thermal property. Blend membranes showed better performances compared to SPSf or SPEEK membranes. The morphology of blend membranes was characterized using XRD, SEM and AFM.