

Synthesis and Characterizations of Sulfonated Poly (Ether Ether Ketone) Speek Nanofiber Membrane

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Abstract : The sulfonated poly (ether ether ketone) SPEEK nanofiber membrane were successfully electrospun for Polymer Electrolyte Membrane (PEM) in Proton Exchange Membrane Fuel Cell (PEMFC) and their nanosized properties were investigated. The poly (ether ether ketone) PEEK victrex® grade 90p was sulfonated with concentrated sulfuric acid (95-98% w/w) at room temperature for 60 hours sulfonation times. The degree sulfonation of SPEEK are 70% was determined by H1 NMR and the functional groups of the SPEEK were characterize using FTIR. Then, the SPEEK nanofiber membrane were prepared via electrospinning method using DMAC as a solvent. The SPEEK sample were successfully electrospun using predetermine set up. FESEM show the electrospun fiber mat surface and confirmed the nanostructure membrane cell.

Keywords : polymer electrolyte membrane (PEM), sulfonated poly (ether ether ketone) (SPEEK), degree sulfonation, Electrospinning, Nanofibers

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