

Preparation and property of sPEEK/sulfonated mesoporous benzene-silica composite membranes

박중화, 김덕준*
성균관대학교
(djkim@skku.edu*)

Sulfonated poly (ether ether ketone) (sPEEK)/ Sulfonated mesoporous benzene-silica electrolyte composite membranes were prepared by a solvent casting method. Components was mixed well in N,N-dimethyl acetamide up to 20wt% of sulfonated mesoporous benzene-silica powder. By Nitrogen adsorption-desorption, BET surface area, total pore volume and average pore diameter was determined. The composite membranes showed higher proton conductivity than the pristine sPEEK membrane and the conductivity increase with the temperature but still lower than that of Nafion at high relative humidity (95%). But at low humidity, composite membranes showed better conductive properties than that of Nafion 117. For instance, at 40% relative humidity, when the temperature rises up to 70%, Nafion 117's conductivity drops dramatically while composite membranes remains reasonable value of conductivity.