Electronic Supplementary Information

Sulfonated polystyrene-block-poly (ethylene-ran-butylene)-block polystyrene/sulfonatedpoly(ether sulfone)withhexagonal boron nitride electrolyte membranefor fuel cell applications

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Gel Permeation Chromatography

Size-exclusion chromatography (SEC) was performed on 1260 Infinity II GPC MDS System. The system was equipped with a 1260 Infinity II isocratic pump, two guard columns (PLgel 5um Guard 50 x 7.5 mm), vial sampler, Multicolumn Thermostat MCT at 50 °C, with two PLgel 5um MIXED-D 300 x 7.5 mm in series. Diode Array Detector (DAD), Refractive Index Detector (RID), and Viscometer Detectors were used to analyze the samples. DMAc containing 5 g/L of LiCl was used as eluent at a flow rate of 0.5 mL/min. The spectra were collected using the Agilent GPC/SEC software dedicated to multi-detector GPC calculations. The molar mass and dispersity values were calculated against polystyrene standards. Fig. S1 depicts the GPC chromatogram of SPES polymer.

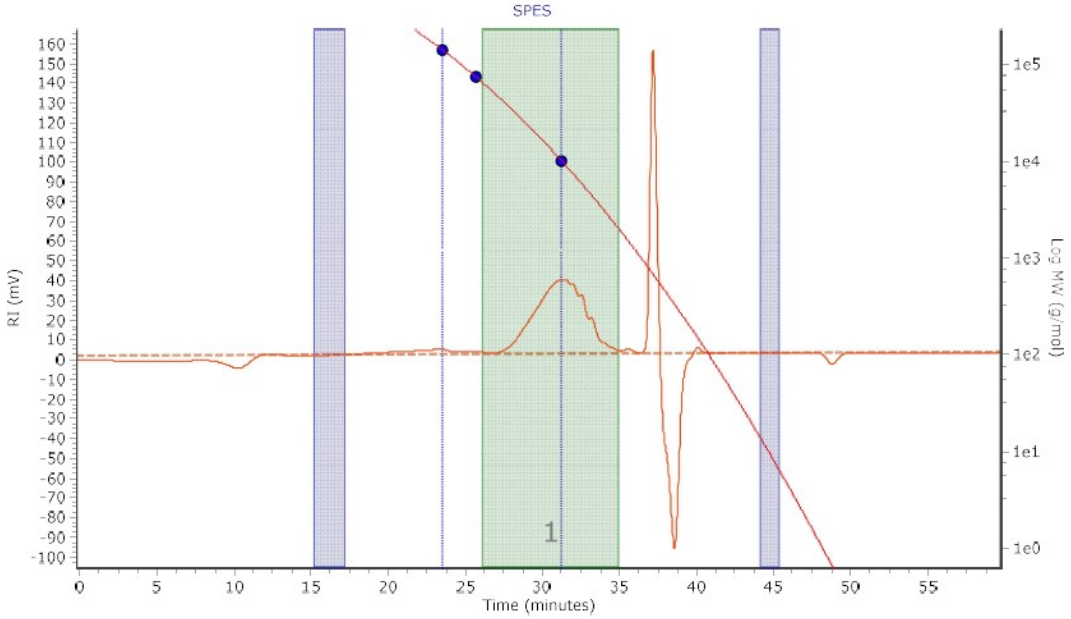

Fig. S1 GPC chromatogram of SPES polymer.

Proton NMR spectroscopy

The protonic environment of aromatic backbone in SPES polymer is assessed by proton NMR analysis and confirmed the structure of SPES. Proton NMR spectrum of SPES polymer was displayed in Fig. S2.

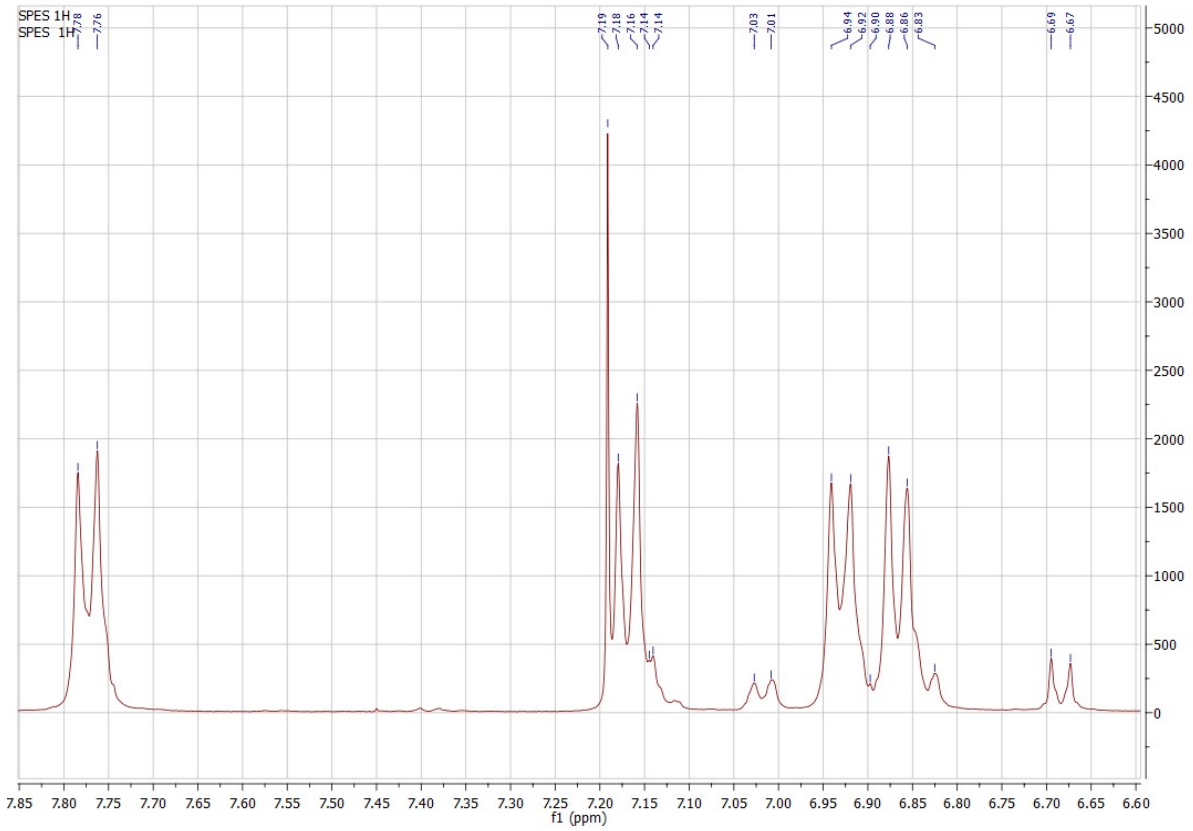

Fig. S2 ^{1}H NMR spectrum of SPES polymer.