

Preparation and properties of electrolyte membranes for methanol fuel cells using aryl sulfonated poly(arylene ether ketone) block copolymers

강규현, 김덕준\*  
성균관대학교  
(djkim@skku.edu\*)

Currently, many researches are being progressed continuously for fuel cell(DMFC). In order to replace fossil fuel, DMFC(direct methanol fuel cell) has been many attempts to use to new energy sources for long time. Perfluorocarbonyl polymers by ion exchange membranes are widely used in DMFC system, but these must maintain high humidity for high ionic conductivity. aryl sulfonated poly(arylene ether ketone) block copolymers should enable good mechanical stability, also the phase of non-sulfonated blocks can reduce the swelling of the sulfonated blocks and the hydrophilic sulfonated blocks enable high proton conductivity. According to these advantages of aryl sulfonated poly(arylene ether ketone) block copolymers should enable high proton conductivity more than sulfonated poly(arylene ether ketone) random copolymers. In this experiment, properties of aryl sulfonated poly(arylene ether ketone) block copolymers and membrane water uptake and ion conductivity were measured.