

가교 술폰화 폴리이미드의 전기화학적 특성에 대한 모폴로지효과

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Membrane performances such as proton conductivity and water uptake level are strongly dependent upon the morphologies of proton exchange membranes (PEMs) for fuel cell applications. It was important to reveal the relationship between the membrane morphologies and membrane performances. In our previous study, random and block copolyimides with crosslinked structure were fabricated to investigate and compare their typical membrane performances with respect to formation of hydrophilic channels responsible for proton conduction and methanol permeation. In addition to basic membrane performances, the electrochemical performances including current-voltage polarization properties can be a main barometer to evaluate the availability of the crosslinked copolyimides as PEM, and simultaneously to give a guideline for effective PEM design. In the present study, single cell performances were investigated using the membrane-electrode assemblies based on the crosslinked sulfonated copolyimides containing different types of crosslinkers.