

**The Effect of Solvent Casting Condition on
the Electrochemical Properties of Nafion/PVdF Copolymer
Blends**

Nafion/PVdF Copolymer Blends의 용매에 따른 전기화학적 특성

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Polymer electrolyte membrane fuel cells are extremely attractive as power sources for the transportation, the distributed power, and the portable electrical devices. The most attractive materials for the membranes used in fuel cell are DuPont's Nafion® and Dow's membranes because they exhibited a number of desirable properties, such as a high ionic conductivity, mechanical strength, and chemical/thermal stability. However, they are responsible for the high cost of fuel cell and are permeable to methanol and hydrogen, which lowers fuel efficiency. These limitations have stimulated many efforts in the development of alternative membrane materials.

PVdF copolymer is semicrystalline polymer that has been shown to be miscible with several common polar polymers that contain ester functional groups. The origin of miscibility between PVdF copolymer and polar polymers has been attributed to strong dipole-dipole interactions between the polar carbon-fluorine bonds in PVdF copolymer and the carbonyl groups of the ester-containing polymers.

In this study, we prepared the blend membrane with Nafion/PVdF copolymer and investigated the effect of solvent casting conditions on electrochemical properties of the PVdF copolymer / Nafion blend.

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