# Proton exchange membrane with amplified proton conductivity for high temperature PEM fuel cell

서광원, 한학수*
연세대학교
(hshan@yonsei.ac.kr*)

Nafion is the most widely used PEM for PEM fuel cell because of its great properties. However, there are still some problems, such as CO poisoning, water management system, high system price, due to its low operation temperature (below 100℃). In order to solve these shortcomings, HT-PEMFC that can be operated at temperature above 150℃ have been studied and polybenzimidazole has regarded one of the candidate for HT-PEMFC. In this work, inorganic material was introduced in PBI to amplify the proton conductivity of the membrane. The proton conductivity result shows that the hybrid membrane has enhanced value compared to that of pure PBI membrane, because the hybrid film holds much more phosphoric acid due to the inorganic material. Furthermore, the hybrid membrane has improved current density and power density compared to those of neat PBI.