

## Effect of the electrode components on the performance of high temperature polymer electrolyte membrane fuel cells

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High temperature PEMFCs operation at temperature above 150°C offers several benefits such as high catalytic activity for oxygen reduction, increase of CO tolerance, and dramatically simple water management. The remarkable progress at temperature above 150°C was a consequence of the advanced in phosphoric acid doped polybenzimidazole. Because polybenzimidazole is an amorphous thermoplastic polymer, it has a good chemical resistance, high thermal stability, and excellent mechanical properties. Particularly, phosphoric acid-doped polybenzimidazole were used for both membrane and ionomer in high temperature polymer electrolyte membrane fuel cells because of high proton conductivity without humidification. In this study, the fabrication of electrodes and membrane electrode assemblies were established through the optimization of the electrode component composition and measured performance of a single cell test at 150°C. Electrode components are consisted of Pt/C, PBI solution, PTFE binder and diffusion layer.