

## Optimization of Electrode Structure for High Temperature PEMFC

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Polymer electrolyte membrane fuel cells (PEMFC) have attracted much interest as a primary power source for electric vehicles [1]. Improvement in membrane/electrode assembly technology, catalyst utilization, cell design and materials manufacturing issues has seen a steady increase in cell performance whilst reducing cost [2].

It is interesting to note that in recent years electrode structure in polymer electrolyte membrane fuel cell (PEMFC) have evolved from two layers to three layer structure in recent years [3]. Standard dual layer electrodes are composed of a porous platinum/carbon black catalyst layer and hydrophobic support layers such as carbon cloths and carbon papers while three layer electrodes were usually prepared by a porous support layer, a diffusion layer consisting of carbon particles and PTFE and a catalyst layer formed by Pt/C and ionomer.

The optimized electrode structure is essential to minimize diffusional loss through the diffusion layer and catalyst layer, and improve PEMFC performance. Therefore, the effect of the structure and composition of both gas diffusion layer and catalyst layer have been thoroughly investigated in this study.

### References

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