

Synthesis of New Cathode Catalysts with Cobalt and Polymer for Oxygen Reduction Reaction in PEFC

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In spite of many efforts for the commercially available power source of clean energy, polymer electrolyte fuel cells (PEFCs) still need to overcome formidable technical and economic challenges. The two major technical barriers specifically associated with the PEFC cathode are the very high cost of platinum and other precious metals and insufficient performance durability of currently available Pt-based electrodes.

Besides the durability issue, two approaches are generally accepted for the reduction of catalyst cost. One is the use of ultra-low content of platinum and other precious metals and the other is the replacement of platinum with non-precious metal such as cobalt, nickel, or, iron.

In this study, a new composite catalyst based on non-precious metal and conducting polymer was prepared for cathode catalyst in PEFC using cobalt, polymer, and carbon. The characterization will be focused on hydrogen-air fuel cell performance of a new composite catalyst as well as the measurement of oxygen reduction reaction determined by rotating ring disk-electrode (RRDE) studies

References

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