

Studies of optimal transfer condition for PEFC

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Membrane electrode assembly(MEA) for polymer electrolyte fuel cell (PEFC) is commonly prepared in the research laboratory by spraying, screen-printing and brushing catalyst slurry onto membrane or other support material. Each method has several advantages, but it is too hard to make a reliable product. It has been generally mentioned that the adoption of continuous process is very helpful to develop the reliable product.

In the present work, we prepared catalyst slurry to use machine coater. To make highly viscous catalyst slurry that is imperative for using coater, we use 20wt. % Nafion solution and minimize the content of solvent.

After catalyst coating onto the support material, we transferred the catalyst layer to both sides of Nafion membrane by hot-pressing. we especially focused on the optimal transfer condition for making membrane electrode assembly. In this case, the degree of transfer was influenced by hot-pressing condition including temperature, pressure, time and support material.