

Influence of Ethylene glycol (EG) in PEMFC MEA catalyst layer coated by electrostatic spray deposition

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Electrostatic spray deposition (ESD) is a process that an aerosol of a solution is ejected from metal syringe nozzle with a high applied voltage to a gas diffusion layer (GDL) or membrane on the counter electrode. Suspensions of Pt/C catalyst nano-particles in Nafion solution, isopropyl alcohol and EG have been prepared to GDL coated by ESD. The thickness of catalyst layer was thinned by the addition of EG. The good morphologies were obtained by evaporation of EG. It was attributed that the MEA prepared by ESD showed structural improvements. It was characterized by scanning electron microscopy (SEM) and electrochemical impedance spectroscopy (EIS).