

عنوان مقاله:

The Simulation and optimization of carbon black/ PTFE composite as the gas diffusion layer of an electrolysis cell

محل انتشار:

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خلاصه مقاله:

In the design of water-absorbing porous electrolyte electrolysis cell, high water support force is needed for the gas diffusion layer (GDL) to improve the cell's performance. To achieve this goal, a novel hydrophobic GDL consist of acetylene black (AB) and polytetrafluoroethylene (PTFE) composite film is utilized. However, different PTFE weight ratios against AB from 0.1 to 6 have considerable effects on the electrical resistance , gas permeability , and water support force . The system become simulated and validated to predict these properties. Then, by applying artificial neural network (ANN) a sensitivity analysis was performed to determine the effects of each parameter on the cell's performance. At last, the system become optimized due to each parameter share on the cell's performance and the optimum value of PTFE weight ratio was reported

کلمات کلیدی:

Water electrolysis, Gas diffusion layer, Composite film, Artificial neural network

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