

Effect of Current Density, Temperature and Pressure on Proton Exchange Membrane Electrolyser Stack

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Abstract : This study investigates the effects of operating parameters of different current density, temperature and pressure on the performance of a proton exchange membrane (PEM) water electrolysis stack. A 7-cell PEM water electrolysis stack was assembled and tested under different operation modules. The voltage change and polarization curves under different test conditions, namely current density, temperature and pressure, were recorded. Results show that higher temperature has positive effect on overall stack performance, where temperature of 80 °C improved the cell performance greatly. However, the cathode pressure and current density has little effect on stack performance.

Keywords : PEM electrolysis stack, current density, temperature, pressure

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