

Experimental Analysis for Dimensionless on Flooding in PEMFC Cathode Channel

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This experimental research attempts to explain how a variety of factors such as stoichiometry, humidity, cell temperature and pressure affect the performance and flooding phenomenon of proton exchange membrane fuel cells. The stoichiometry changes from 1.5, 2.0 and 2.5, the temperature of the cell varies from 50, 55 and 60 degrees and the humidity covers 0, 50 and 90 %. This paper gives the dimensionless Flooding Value. Flooding Value (FV) is a function of stoichiometry, humidity, temperature, pressure. Therefore, not only inlet temperature, humidity, pressure, and flow rate but also outlet temperature, humidity, and pressure are measured. Flooding Value is calculated by measured values of temperature, humidity, pressure, and flow rate. This study analyzes flooding of the cathode in the proton exchange membrane fuel cell. The effect of air stoichiometry, cell temperature, air humidity is also discussed in this paper.