

Electrochemical Aided Model to Study Solid Polymer Electrolyte Water Electrolysis

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Résumé –

L'objet de cet article est de proposer une analyse de l'électrolyse de l'eau par membrane polymère solide. L'investigation théorique s'articule autour de l'application de l'équation de Butler-Volmer et la caractérisation du transport de l'eau à travers la membrane. On aboutit aux équations de surtension cathodique et anodique dont la précision est testée par comparaison avec les données publiées.

Abstract –

The aim of this study is to analyze the Proton Exchange Membrane (PEM) water electrolysis. On the basis of theoretical investigation the well know Bulter-Volmer equation and water transport characteristics through the solid electrolyte membrane were employed to simulate the electrode activation over potential and membrane ohmic over potential. Then, the simulation results were compared with the published experimental data.

Keywords:

Hydrogen - Water Electrolysis - Proton Exchange Membrane - Butler-Volmer equation - Computer Simulation - Electrochemical Model - Over potential.