Application of Pd-modified Nickel Foam Cathodes to the Process of Alkaline Water Electrolysis

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This work presents an investigation of hydrogen evolution reaction (HER) through the process of alkaline water electrolysis (AWE), performed by means of pure and palladium-modified nickel foam cathodes, and stainless steel anodes. Temperature-dependent kinetics of the HER were studied in 2 and 8 M KOH, over the temperature range: 20-60 °C through a.c. impedance spectroscopy and d.c. galvanostatic electrochemical experiments. The charge-transfer resistance, exchange current-density for the HER and other electrochemical parameters for examined catalyst samples were presented.

Keywords: Renewable energy; Alkaline water electrolysis; Pd-modified Ni foam; HER; Impedance spectroscopy

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