Short Communication

Preparation of Carbon- Based Composite NiO/MoO₂/MoO₃/C by Electrodeposition and Its Application in Microbial Electrolysis Cells

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In this paper, a NiO/MoO₂/MoO₃/C composite was prepared via cyclic voltammetry by using carbon paper as a substrate, and was applied as a cathode material in a microbial electrolysis cell. Scanning electron microscopy was performed to study the lamellar structure of this composite. The x-ray microscopy results revealed the nanocrystalline structure of the composite. While the XPS test results showed that the composite contained Mo⁶⁺, Mo⁴⁺ and Ni²⁺. Although the electrochemical activity of Mo/Ni was slightly inferior to that of Pt according to the linear sweep voltammetry and Tafel test, its hydrogen production performance was higher than the latter. In addition, Mo/Ni showed an excellent stability.

Keywords: Microbial electrolysis cell; Composite NiO/MoO₂/MoO₃/C; Hydrogen production; Cyclic voltammetry electrodeposition

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