Short Communication

Photoelectrochemical Behavior of Microrod ZnO Coated 316L Stainless Steel Prepared by Hydrothermal Method

Hu Wang^{1,2}, Juan Xie¹, Xiaoqin Jiang¹, Zhihao Zhu¹, Yingying Wang³, Mohamad Chamas³,
Ming Duan^{2,3}, Junlei Tang^{2,3,*}

¹ School of Materials Science and Engineering, Southwest Petroleum University, Chengdu 610500, P.R.China

² State key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum University, Chengdu 610500, P.R.China

³ School of Chemistry and Chemical Engineering, Southwest Petroleum University, Chengdu 610500, P.R.China

*E-mail: Junleitang@126.com

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A low-dimensional ZnO film was fabricated on 316L stainless steel (SS) surface by hydrothermal method. Scanning electron microscopy (SEM) showed that the film was consisted of microrods with diameter of about 0.6 μm . X-ray diffraction (XRD) proved the hexagonal phase ZnO of the film. The photoelectrochemical behavior of the microrod ZnO coated electrode was investigated in the presence and absence of UV light irradiation by the open circuit potential (OCP), photocurrent, polarization curve and electrochemical impedance spectrum (EIS) measurements. It was found that the microrod ZnO film exhibited good photo-electrochemical property. The photogenerated current provided noticeable cathodic protection on 316L SS under UV light irradiation. The mechanism of photocurrent cathode protection was discussed.

Keywords: Zinc oxide; Hydrothermal method; Photoelectrochemical property; Photocurrent cathodic protection

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