Short Communication

Corrosion Resistance of Super-Hydrophobic Coating on AZ31B Mg Alloy

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A super-hydrophobic coating was prepared on AZ31B Mg alloy in this paper. Electroless Ni-P coating as the inner layer was deposited on the AZ31 substrate via an electroless plating process, and Cu was electroplated as the intermediate layer. Then, the electroplating Ni method was employed to form the micro/nano structure, and the super-hydrophobic coating was prepared after the composite coating modified by stearic acid. The modified coating exhibited super-hydrophobic properties with a static water contact angle of 155°. Potentiodynamic polarization and electrochemical impedance spectroscopy (EIS) tests were conducted in 3.5 wt.% NaCl solution at room temperature. The test results indicated that the corrosion resistance of AZ31 was improved significantly by this super-hydrophobic coating. The super-hydrophobic samples had much more corrosion resistance in comparison with freshly prepared samples.

Keywords: Corrosion resistance; Super-hydrophobic; Mg alloy

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