Short Communication

Electrodeposition of Superhydrophobic Hydroxyapatite/Magnesium Phosphate on a Magnesium Alloy Substrate for Enhanced Corrosion Resistance

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Magnesium phosphate-doped hydroxyapatite and magnesium hydrogen phosphate-doped dicalcium phosphate dihydrate superhydrophobic coatings were electrolytically deposited on an AZ91D alloy. The contact angles of water/oil were 155°/141°, respectively. In comparison with the bare substrate, electrochemical measurements of the superamphiphobic surfaces, including both EIS measurement and potentiodynamic polarization curves, all demonstrated a dramatic enhancement in the inhibition of surface corrosion.

Keywords: Magnesium alloy; Electrodeposition; Hydroxyapatite; Superhydrophobic coating; Corrosion

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