Short Communication

Corrosion Behaviour of Electroless Deposited Ni–P/BN(h) Composite Coating

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In this study, self-lubrication BN(h) particles successfully co-deposited on Ni–P coating through electroless deposition process, and conduct research for the Ni–P/BN(h) composite coating surface morphology, microstructure, mechanical properties and corrosion behaviour. Scanning electron microscopy (SEM) and atomic force microscope (AFM) were used to observe the micro morphology of coating, and X-ray diffraction (XRD) to analyse crystalline phase. The corrosion resistance was evaluated through polarization curves and electrochemical impedance spectroscopy (EIS) in 3.5 wt.% NaCl solution at room temperature. The results show that the hardness of Ni–P/BN(h) composite coating can be improved after heat treatment. According to the results of corrosion testing in the 3.5 wt.% NaCl solution, the corrosion resistance of electroless Ni–P/BN(h) composite coatings has been strengthened due to barrier effect by BN(h) particles, compared to a conventional Ni–P coating.

Keywords: Electroless, Ni–P/BN(h) Composite coating, Mechanical properties, Corrosion resistance

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