Effect of Pulse Reverse electrodeposition Parameters on the Microstructure of the Ni/NiO Composite Coating

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doi: 10.20964/2020.01.34

Received: 7 September 2019 / Accepted: 18 October 2019 / Published: 30 November 2019

In this paper, a Ni/NiO composite coating has been prepared by the pulse reverse current (PRC) plating technique and the effects of parameters including average current density, pulse frequency, total duty cycle, forward duty cycle, plating temperatures and NiO content on the micro-morphology of the composite coating has been investigated. The results reveal that the composite coating prepared at an average current density of $10 \text{ A} \cdot \text{dm}^{-2}$, a pulse frequency of 100 Hz, total duty cycle of 80 %, forward duty cycle of 60 %, plating temperature of 50 °C and 50 $\text{g} \cdot \text{L}^{-1}$ of NiO addition exhibit a smooth and dense structure, with uniformly distributed NiO particles.

Keywords: Pulse reverse plating, electrodeposition parameter, Ni/NiO composite coating, molten fluorides.

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