

Anti-Corrosion and High Temperature Thermal Treatment of SiO₂ Crystal Induced on Zinc Electrolyte on Mild Steel

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ABSTRACT

The effects of SiO₂ nanoparticles on the electroplating of Zn–Nb₂O₅ coatings of mild steel were considered in this research work. The hardness performance and corrosion resistance of the coated samples were analysed using Emco-test microhardness tester and Autolab PGSTAT 101 Metrohm potentiostat/galvanostat. The results of the research showed that Zn–10Nb₂O₅–SiO₂ coatings displayed preferable hardness property and corrosion resistance compared to Zn–10Nb₂O₅ coating. Also, the incremental addition of SiO₂ nanoparticles improved the hardness behaviour and corrosion resistance of Zn–10Nb₂O₅ coatings.

KEYWORDS: Corrosion, Hardness, SiO₂ Particulate, Zn–Nb₂O₅.

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