

Anticorrosive Properties of Poly(O-Phenylendiamine)/ZnO Nanocomposites Coated Stainless Steel

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Abstract : Poly(o-phenylendiamine) and poly(o-phenylendiamine)/ZnO(PoPd/ZnO) nanocomposites coating were prepared on type-304 austenitic stainless steel (SS) using H₂SO₄ acid as electrolyte by potentiostatic methods. Fourier transforms infrared spectroscopy and scanning electron microscopy techniques were used to characterize the composition and structure of PoPd/ZnO nanocomposites. The corrosion protection of polymer coatings ability was studied by Eocp-time measurement, anodic and cathodic potentiodynamic polarization and Impedance techniques in 3.5% NaCl as a corrosive solution. It was found that ZnO nanoparticles improve the barrier and electrochemical anticorrosive properties of poly(o-phenylendiamine).

Keywords : anticorrosion, conducting polymers, electrochemistry, nanocomposites

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