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

Authors : Aisha Ganash

Abstract : Poly(o-phenylendiamine) and poly(ophenylendiamine)/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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