



البحث الثالث

Electropolymerized durable coatings deposited onto Pt-electrode as corrosion inhibitor for mild steel

Abstract:

Electropolymerization and deposition of poly(salicylic acid-co-Nmethylaniline) copolymer, poly(SA-co-NMA) onto platinum electrode was studied using cyclic voltammetry in an acidic medium under inert conditions at various reaction factors. The mechanism of the electropolymerization reaction was proposed and the apparent activation energy (E_{app}) was determined. The deposited polymer film was characterized using different spectral tools such as UV spectroscopy, IR, ¹HNMR, X-ray, thermogravimetric analysis (TGA) and scanning electron microscopic (SEM) analysis, the spectral data for poly(salicylic acid) PSA and poly(N-methylaniline) PNMA were also given for comparison. The electropolymerized copolymer was collected from the Pt-surface then it has been investigated as a corrosion inhibitor. An open circuit potential method (OCP), electrochemical impedance spectroscopy (EIS) measurements and polarization techniques were used to study the application and the efficiency of the deposited copolymer film as corrosion inhibitor for mild steel in an acidic environment pH = 2.

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