

Electropolymerization kinetics of o-aminophenol and characterization of the obtained polymer films

Sayyah SM, [El-Rabiey MM](#), Abd El-Rehim SS, Azooz RE

Poly(ortho-ammophenol) has been synthesized electrochemically from a previously deoxygenated acid medium. The initial rate of electropolymerization reaction on platinum electrode is small and the rate law is: $\text{Rate} = k(2) [D](0.50)[\text{HCl}](1.125)[M](1.29)$. The apparent activation energy (E_a) was found to be 68.63 kJ mol⁻¹. The polymer films obtained have been characterized by cyclic voltammetry, X-ray diffraction, elemental analysis, TGA, scanning electron microscopy, H-1 NMR, UV-visible, and IR spectroscopy. The mechanism of the electrochemical polymerization reaction has been discussed. (c) 2006 Wiley Periodicals, Inc.

Keywords: electrooxidation; kinetic study; cyclic voltammetry; characterization; mechanism