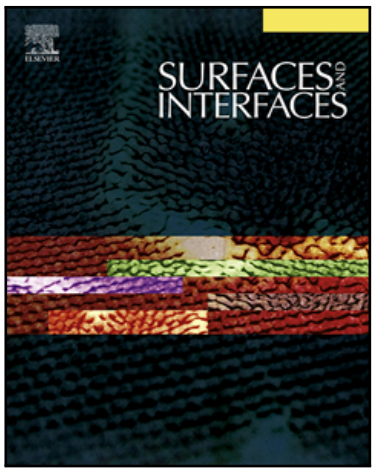

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Morphology and Electrical Conductivity of Polyaniline Coating on Acetate Film

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Acetate films were coated with polyaniline molecules using the successive ionic layer adsorption and reaction (SILAR) method. In this method, polyaniline molecules are synthesized as they are being coated on the acetate film. Fourier transform infrared (FTIR) spectroscopy shows the existence of molecular vibrations attributed to the presence of polyaniline molecules. A model was created to explain the structures seen in the Scanning Electron Microscopy (SEM) micrographs. A four-point probe measures the surface conductivity of the samples. The surface conductivity was found to significantly increase with more cycles of dipping.

Keywords: polyaniline; SILAR; coating; conducting polymer; acetate; surface conductivity; SEM; FTIR

1. Introduction

The use of conducting polymer [1-5] in coating substrates hybridizes the mechanical property of the substrate and the electrical property of the polymeric coating. For example, polyaniline-coated acetate film acquires the flexibility of the film and the conductivity of the conducting polymer. This flexible conducting film has promising application on the fabrication of electromagnetic interference shield, electrostatic discharged materials, sensors, supercapacitors, and batteries.