

BEHAVIOR OF POLYPYRROLE FILM CHEMICALLY POLYMERIZED WITH LAURIC ACID ON COPPER SURFACE

B. R. Ferreira¹, A. S. Liu², L. Y. Cho¹

¹IP&D, FEAU, Universidade do Vale do Paraíba – UNIVAP, Av. Shishima Hifumi,
2911, São José dos Campos, SP, Brazil

²Instituto Federal de Educação, Ciência e Tecnologia de São Paulo –IFSP, Rodovia
Presidente Dutra, km 145, São José dos Campos, SP, Brazil
ramosf.barbara@gmail.com

ABSTRACT

Pyrrrole was successfully polymerized at a copper surface in ethanol solution using hydrogen peroxide as catalyst to generate an adherent and homogeneous polypyrrole (PPy) coating. The PPy was formed of clusters of small spherical grains. The layer has remained stable when immersed in 0.1 mol.L⁻¹ NaCl for 7 days, which indicated that the copper-PPy arrangement is stable in corrosive environment. The polarization curves showed that the PPy layer can promote a positive displacement in the corrosion potential, compared to the value of the uncoated copper. It also was observed that the corrosion potential of coated copper displaces to positive direction and the current density decreases sharply in the presence of the lauric acid as dopant. These results indicate that copper-PPy-lauric acid can act as a protective layer on copper and improve the overall corrosion performance.

Key-words: polypyrrole, copper, lauric acid, corrosion