Effect of Plasma Pre-oxidation on the Cu Corrosion Inhibition in 3.5% NaCl by an Environmentally Friendly Amide

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The effect of plasma pre-oxidation on the effect of the inhibition performance of N-[2-[(2-hydroxyethyl) amino] ethyl]-amide extracted from coffee bagasse for Cu in 3.5% NaCl has been investigated by using electrochemical techniques. Electrochemical impedance spectroscopy, potentiodynamic polarization curves and linear polarization resistance (LPR) measurements were the employed techniques. Results have shown that the corrosion rate of Cu was decreased and the properties of the passive film formed by the inhibitor were improved. Corrosion protection given by the inhibitor and pre-oxidizing treatment improves as time elapses due to an increase of the surface area covered by the corrosion products layer. This has been explained in terms of a better adherence of the inhibitor-formed film to the metal which by pre-oxidizing.

Keywords: Copper, pre-oxidation, green inhibitor, corrosion.

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