Corrosion Inhibition Action of Sulfamethoxazole for Brass in Acidic Media

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The corrosion inhibition action of sulfamethoxazole (SMX) on aesthetical brass has been investigated in synthetic acidic rainwater by means of potentiodynamic polarization, electrochemical impedance spectroscopy (EIS), optical microscopy, scanning electron microscopy (SEM) and Fourier Transformed Infrared spectroscopy (FT-IR). It was found that SMX inhibits the corrosion of the brass and the inhibition efficiency increased with increasing concentration. Maximum inhibition efficiency of about 84% has been obtained at the higher concentration of SMX in the synthetic acidic rainwater. Long time immersion test showed that the inhibition efficiency increases with immersion time as indicated the increase of total impedance. Surface characterization performed by FT-IR, optical and SEM analyzes allowed to establish that SMX acts as inhibitor by forming protective adsorbed layer.

Keywords: brass, sulfamethoxazole, corrosion inhibition, electrochemical impedance spectroscopy

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