Electrochemical Impedance Spectroscopy Investigations of Steel Corrosion in Acid media in the presence of Thiophene Derivatives

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Reinforcing steel corrosion behavior in the presence of 2-(thiophen-3-yl)ethanamine (3ET) and 2-(thiophen-2-yl)ethanamine (2ET) was studied using Electrochemical impedance spectroscopy. Both pit growth and corrosion of steel were inhibited with either compound present in the corroding medium. (EIS) measurements permitted the investigation of concentration, immersion time and the applied potential effects. Inhibition efficiencies up to ca. 86.22% and ca. 86.51% were achieved in the presence of 5×10^{-3} M (2ET) and (3ET), respectively.

Keywords: EIS, thiophene, inhibition, steel, potential of zero charge (PZC), Equivalent circuit

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