Unused Meropenem Drug as Corrosion Inhibitor for Copper in Acidic Medium; Experimental and Theoretical Studies

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Inhibitive and adsorption properties of unused meropenem drug for the corrosion of Cu in one molar HNO₃ solution have been done by utilized (EIS), tafel polarization and (EFM) techniques as well as mass reduction methods of monitoring corrosion. The Effect of temperature was investigated at temperature range (25 - 45⁰C). The obtained results indicated that the examined drug is an excellent inhibitor in 1 M HNO₃ and its efficiency equalize to 98.7% at 300 ppm. The inhibition efficiency percent (% IE) improvements with raising the drug dose while it lowering with raising the temperature of solution. The polarization data indicated that this drug play as mixed inhibitor type. The adsorption of the drug on the Cu surface follows the Temkin isotherm. Thermodynamic parameters have been calculated and discussed.

Keywords: Corrosion inhibition, Nitric acid, Copper, Unused meropenem drug

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