Short Communication

Enhanced Inhibition of Corrosion of Mild Steel by Triazole Derivative in Presence of Copper Ions

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The inhibition of the corrosion of mild steel in 0.5 M H₂SO₄ solution by 5-(4-Pyridyl)-1H-1,2,4-triazole-3-thiol (PTT) compound both in the presence and absence of copper ions has been studied using potentiodynamic measurements. It has been found that copper ions significantly enhance the inhibiting action of PPT. For instance, while the inhibition efficiency in the presence of 0.15 mM PTT is 23 %, it is tripled when a 0.05 mM of copper ions is added, pointing to the significant synergism between the adsorption of PTT and copper ions. The synergistic parameter was found to equal 2.39 in the presence of 0.15 mM PTT + 0.05 mM Cu²⁺. The PTT acts as a mixed type inhibitor both in the presence and absence of copper ions, and it follows Langmuir adsorption isotherm.

Keywords: Corrosion inhibitor, Langmuir isotherm, Mild steel, Synergism, Adsorption, copper ions

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