Corrosion Inhibition Effect of some Pyridopyrimidine Derivatives for Carbon Steel in 0.5 M HCl Solution

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The impact of some Pyridopyrimidine derivatives on the corrosion of carbon steel (CS) in 0.5M HCl was examined utilizing mass loss (ML), potentiodynamic polarization (PP), AC impedance spectroscopy (EIS) and electrochemical frequency modulation (EFM) techniques. The inhibition efficiency (IE) increases with increasing concentration of inhibitor but decreases with rising the temperature. The inhibitors were adsorbed on the CS surface obey Temkin's isotherm. The electrochemical data indicated that all the investigated compounds act as mixed-type inhibitors. The mechanism of the inhibition process was discussed in the light with chemical construction and quantum-chemical calculations of the Pyridopyrimidine derivatives.

Keywords: corrosion protection; CS; EIS; EFM; HCl; Pyridopyrimidine derivatives

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