Pantoprazole Sodium as a Corrosion Inhibitor for Zinc in Acidic Solutions

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Pantoprazole Sodium (PAN) was tested as a corrosion inhibitor for zinc in aqueous solutions of 0.5M H₂SO₄, 1M HCl and 1M HClO₄ at 30°C using absorbance measurement, electrochemical techniques; potentiodynamic polarization and AC-impedance techniques. The results obtained revealed that PAN could inhibit the corrosion of zinc effectively only in 1M HClO₄. The values of binding constants obtained for PAN in 0.5M H₂SO₄, 1M HCl and 1M HClO₄ solutions for zinc after fitting the data to different adsorption isotherms could be arranged as follows: perchloric acid > hydrochloric acid > sulphuric acid. This order agrees to a great extent with the values of inhibition efficiency calculated from absorbance and different electrochemical techniques.

Keywords: zinc; polarization; absorbance; AC-impedance; acid corrosion; inhibition; pantoprazole.

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