Corrosion Inhibition of Zinc in Acid Medium using some Novel Organic Compounds

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The corrosion performance of zinc in 0.5M HCl in the attendance of organic compounds has been examined using AC impedance (EIS), electrochemical frequency modulation (EFM), potentiodynamic polarization (POTENTIODYNAMIC POLARIZATION) and weight reduction (WR) techniques. The protection efficiency (IE) improved by improving the organic compound concentrations and decreased by raising the temperature. Polarization results revealed that these examined compounds act as mixed-kind inhibitor and they adsorbed on Zn surface obeying isotherm of Langmuir. The surface examination of protected Zn was evaluated by SEM (scanning electron microscope), AFM (atomic force microscopy), EDX (the energy dispersive X-ray spectra), and FTIR (Fourier transform infrared spectra). The results of electrochemical and non-electrochemical tests were in excellent agreement.

Keywords: Adsorption, Corrosion inhibition, Zn, HCl, SEM, EDX, AFM, FTIR

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