Corrosion Inhibition Performance and Adsorption Mechanism of Novel Quinazoline Schiff Base on Low Alloy Steel in HCl Media

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doi: 10.12964/2018.12.40

Received: 27 July 2018 / Accepted: 21 September 2018 / Published: 5 November 2018

The inhibition performance of synthesized Quinazoline Schiff Bases 2-(3,3-Dimethyl-2,3-dihydro-indol-2-ylidene)-3-[(2-hydroxyphenyl) imino] propylidene (DHIP1) and 2-(3,3-Dimethyl-2,3-dihydro-indol-2-ylidene)-3-[(2-hydroxyphenyl) imino] propanal (DHIP2) on low carbon steel (LAS) in 1 M HCl has been examined using weight loss, electrochemical measurements and scanning electron microscopy (SEM). The obtained experimental results indicated that both DHIP1 and DHIP2 have fairly enhanced the corrosion resistance of LAS and extremely exhibited better inhibitive efficiencies at a concentration of 5 mM. The results of potentiodynamic polarization results clarified that investigated Schiff Bases acts as mixed-type inhibitors and follow Langmuir adsorption isotherm is fitted well for adsorption. It was found that the inhibition efficiency increases with increase in inhibitor concentration as confirmed by all the measurements.

Keywords: Low alloy steel; inhibition corrosion; adsorption; EIS; Quinazoline Schiff Bases

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