Inhibitive effect of 6-dibutylamino-1,3,5-triazine-2,4-dithiolmonosodium as a corrosion inhibitor for SUS304 stainless steel in hydrochloric acid solution

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Stainless steels have been used extensively in various fields while corrosion can brought serious problems to their functionality. The inhibition effect of 6-dibutylamino-1,3,5-triazine-2,4-dithiolmonosodium (DBN) on SUS304 stainless steel corrosion in 1.0 M HCl was studied by means of electrochemical impedance spectroscopy (EIS), potentiodynamic polarization, cyclic voltammeter (CV) and scanning electron microscopy (SEM) techniques. Results from electrochemical measurements showed that the corrosion inhibition performance of DBN was effective, and the protection efficiency was up to 99.82%. Adsorption of DBN inhibitors on stainless steel surface followed Langmuir's adsorption isotherm at 30 °C. Further, morphology observation suggested that the stainless steel was well protected by DBN inhibitor.

Keywords: Stainless steel, Triazinedithiols, Corrosion inhibitor, Polarization

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