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Inhibition Effect of 2,2’-bipyridyl on the Corrosion of austenitic Stainless Steel in 0.5M H2 SO4

Amel GHARBI, ABDELAZIZ HIMOUR, Sihem Abderrahmane, KARIMA ABDERRAHIM

Abstract: The corrosion inhibition of AISI309 austenitic stainless steel by 2,2'-Bipyridyl in 0.5MH2SO4 at 298K was studied using the mass loss’ method, the potentiodynamic polarization (Tafel), the linear polarization (LRP), and the electrochemical impedance spectroscopy (EIS). The results showed a mixed inhibition mode and an increase in the charge transfer resistance, due to inhibitor molecules adsorption at steel surface. This latter obeys to Langmuir isotherm. The observation by scanning electron microscopy (SEM) and the analysis by energy dispersion spectrometry(EDS) confirm an inhibitor film’s presence. The calculated inhibition efficiencies are in accordance with 87.78% maximum value.

Keywords : AISI309, 2, 2'-Bipyridyl, corrosion, EIS, Tafel