Corrosion Inhibition Effect of N-lauroyl L-lysine on Mild Steel in 0.5 M H₂SO₄ Solution

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doi: 10.20964/2020.06.53

Received: 5 February 2020 / Accepted: 26 March 2020 / Published: 10 May 2020

The inhibitive effect of N-lauroyl L-lysine on the corrosion of mild steel in 0.5 M H₂SO₄ solution was investigated by electrochemical technique, weight loss measurement, scanning electron microscope (SEM) and quantum chemical calculation. The results showed that N-lauroyl L-lysine was a moderate cathodic inhibitor for mild steel in 0.5 M H₂SO₄ solution with its inhibition efficiency increasing with concentration, and decreasing with temperature. The adsorption of N-lauroyl L-lysine on the surface of mild steel obeyed El-Awady thermodynamic-kinetic model, and the thermodynamic and kinetic parameters, as well as quantum chemical parameters, were determined to discuss the mechanism of inhibition of N-lauroyl L-lysine on mild steel surface.

Keywords: N-lauroyl L-lysine, mild steel, corrosion inhibitor, adsorption, quantum chemical calculation

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