Short Communication

Experimental and theoretical studies of 2-cyano-N-(4-morpholinobenzylidine) acetohydrazide as corrosion inhibitor for galvanized steel and 304 stainless steel in 1M H₂SO₄ solution

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Received: 20 August 2021 / Accepted: 22 September 2021 / Published: 10 November 2021

A 2-cyano-N-(4-morpholinobenzylidine) acetohydrazide is used as a corrosion inhibitor for both galvanized steel (GS) and 304 stainless steel (304 SS) in 1M H₂SO₄. The corrosion inhibition efficiency of GS and 304 SS in 1M H₂SO₄ were studied using both chemical (weight-loss (WL)) and electrochemical techniques. The obtained results were used for calculating the inhibition effectiveness, corrosion rate (CR), and adsorption characteristics. The inhibitors adhere to the Langmuir adsorption isotherm on the investigated different surfaces. The SEM micrographs were investigated of GS and 304 SS with and without inhibitors at optimum conditions. The inhibitor led to a smooth and dense protective layer formation. Quantum chemical investigation of 2-cyano-N-(4-morpholinobenzylidine) acetohydrazide was studied.

Keywords: Corrosion inhibitor; Galvanized steel; 304 stainless steel; Acidic solution; 2-cyano-N-(4-morpholinobenzylidine) acetohydrazide

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