

2016

The Inhibition Effect of Gum Arabic on the Corrosion of Carbon Steel in Hcl Medium

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Abstract : The inhibition effect of exudate gum from Acaciatrees (Gum Acacia, GA) on the corrosion of carbon steel API 5LX60 in acidic media 1 M was studied by weight loss, electrochemical polarization methods; also, surface morphology. The results of weight loss and electrochemical polarization methods indicated that the inhibitor efficiency (I%) increased with increasing inhibitor concentration. The results show that GA is a good inhibitor in 1 M. The maximum percentage inhibition efficiency was found to be 92% at 4 g/L. The adsorption of GA on pipeline API 5L X60 steel surface obeys Langmuir adsorption isotherm, and involves physical adsorption. Polarization curves reveal that GA acts as a mixed-type inhibitor in sulfuric acid.

Keywords : Gum Arabic, corrosion, steel, inhibition efficiency, inhibitor