International Journal of Metallurgical & Materials Science and Engineering (IJMMSE)
ISSN(P): 2278-2516; ISSN(E): 2278-2524
Vol. 4, Issue 2, Apr 2014, 7-16

SYNERGISTIC INHIBITION BETWEEN AMPICILLIN TRI-HYDRATE AND KI FOR CORROSION OF CARBON STEEL IN 1M HCl SOLUTION

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ABSTRACT

The effect of Ampicillin tri-hydrate $C_{16}H_{19}N_3O_4S$ on the corrosion of carbon steel in 1 M HCl solution was studied by weight loss and electrochemical polarization techniques at 30 $^{\circ}$ C (313 K), Ampicillin tri-hydrate concentrations used in the study were (0.001, 0.002, 0.003 and 0.004)M .The effect of KI addition on corrosion inhibition efficiency was also studied. The results show that inhibition efficiency increased with Ampicillin tri-hydrate concentration and synergistically increased in presence of KI. The adsorption of Ampicillin tri-hydrate and KI on carbon steel surface follows Freundlich isotherm and, adsorption on surface of carbon steel is spontaneously due to adsorption free energies calculation.The synergistic parameter values indicating that the enhancement of inhibition efficiency is due to synergism caused by adding halides ions.

KEYWORDS: Corrosion, Corrosion Inhibitor, Adsorption Isotherm, Activation Energy, Synergistic Inhibition