Inhibitive Effect of Cetyltriphenylphosphonium Bromide on C-steel Corrosion in HCl Solution

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Cetyltriphenylphosphonium bromide (CTPPB) was investigated as a corrosion inhibitor for C-steel in 0.5 M HCl using chemical and electrochemical techniques, as well as, surface examination by SEM. The data indicated that CTPPB gives good inhibition effect and the inhibition mechanism is based on the adsorption process forming a barrier layer film that protect the metal from acid attack. The adsorption is found to obey Langmuir model. The effect of temperature was studied. The inhibition efficiency increased by increasing inhibitor concentration and decreased with temperature. Some thermodynamic parameters for adsorption process are deduced and discussed.

Keywords: Carbon steel, Cetyltriphenylphosphonium bromide, Cationic surfactant, Corrosion-inhibition.

FULL TEXT

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