Corrosion inhibition of Q235 steel in HCl medium by 5,5,7,12,12,14-hexamethyl-1,4,8,11-tetraazacyclotetradecane

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The corrosion inhibition of Q235 steel in HCl solution by 5,5,7,12,12,14-hexamethyl-1,4,8,11-tetraazacyclotetradecane (HMETD) as a fully saturated macrocyclic has been studied using potentiodynamic polarization, weight loss measurement and microstructure analysis. Results indicate that the saturated macrocyclic inhibitor of HMETD is an effective mixed-type inhibitor, the inhibition efficiency slightly fluctuate with storage time changing, increase with HMETD concentration increasing, decrease with HCl concentration and temperature increasing. The adsorption of HMETD on Q235 steel surface obeys Langmuir isotherm, which is a mixed adsorption containing physisorption and chemisorption.

Keywords: Inhibitor; Acid; Corrosion; Adsorption; Steel; Macrocyclic.

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