Short Communication

Study on corrosion inhibition of Q235 steel in HCl solution by 5,7,7,12,14,14-hexamethyl-1,4,8,11-tetraazacyclotetradeca-4,11-diene diperchlorate

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The corrosion inhibition of Q235 steel in HCl solution by 5,7,7,12,14,14-hexamethyl-1,4,8,11-tetraazacyclotetradeca-4,11-diene diperchlorate (HMTADE-2HClO₄) has been studied using potentiodynamic polarization, weight loss measurement and microstructure analysis. Measurements results suggest that HMTADE-2HClO₄ is an effective mixed-type inhibitor, the inhibition efficiency increase with HMTADE-2HClO₄ concentration increasing, decrease with temperature and HCl concentration increasing, and slightly fluctuate with storage time changing. The experimental results are further suggest that the adsorption of HMTADE-2HClO₄ on Q235 steel surface obeys Langmuir isotherm, which is a mixed adsorption involving both physisorption and chemisorption.

Keywords: Macrocyclic; Corrosion; Inhibitor; Polarization; Adsorption.

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