Crystal Structure, Surface Activity and Corrosion Inhibition Effect of Dihydroxyethyl Ammonium O,O'-di(4-methylphenyl) dithiophosphate for Q235 Steel in 1.0 M H₂SO₄

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The hydrophilic corrosion inhibitor of dihydroxyethyl ammonium O,O'-di(4-methyl phenyl)dithiophosphate (DAOP) was synthesized. Meanwhile, the crystal structure, surface activity and corrosion inhibition of DAOP were presented in this work. The weight loss and potentiodynamic polarization measurements results all shows that DAOP is an effective hydrophilic corrosion inhibitor for Q235 steel (QS-235) in 1.0 M H₂SO₄. Potentiodynamic polarization measurements present that DAOP is a mixed-type inhibitor, which adsorbed on QS-235 surface attributable to both physisorption and chemisorption.

Keywords: Synthesis; Acid; Surface activity; Inhibitor; Chemisorption.

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