Corrosion Inhibition of Titanium in Hydrochloric Acid containing Na₂MoO₄

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The corrosion inhibition behaviors and mechanisms of Na₂MoO₄ for Ti in 15wt% HCl-acidizing fluid used in natural gas exploitation were studied via potentiodynamic polarization, electrochemical impedance spectroscopy (EIS) and Mott–Schottky techniques. The results show that the MoO₄²⁻ plays a significant role in the formation and stability of the passive film on Ti surface. As the concentration of MoO₄²⁻ increases to 0.01 wt%, the hydrogen evolution reaction (cathodic process) is apparently inhibited, and the anode process changes from active-passivation state to passivation state.

Keywords: Corrosion; Acidizing fluid; Ti; Na₂MoO₄

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