Effect of Sodium Tungstate on the Corrosion Behavior of Fe-Base Alloy in H₂SO₄ Solution

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The corrosion behavior of Fe-base alloy in H₂SO₄ acid at different concentrations was evaluated. The effect of sodium tungstate inhibitor on Fe-base alloy in 10 % H₂SO₄ solutions was evaluated by using weight loss and potentiodynamic polarization methods along with scanning electron microscope and energy dispersive x-ray analysis. The corrosion rate and surface morphology of Fe-base alloy in the presence of various concentrations of sodium tungstate inhibitor compared to control in 10 % H₂SO₄ solutions were measured. The sodium tungstate inhibitor was found to improve the protection against corrosion in comparison to the uninhibited 10 % H₂SO₄ solution.

Keywords: Corrosion; Protection; Inorganic inhibitor; Electrochemical technique; Microstructure

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