Corrosion Behavior of 2Cr12MoV Turbine Steel in Early Condensate in the Presence of Acetic Acid

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doi: 10.20964/2017.03.11

Received: 5 December 2016 / Accepted: 29 December 2016 / Published: 12 February 2017

The corrosion behavior of 2Cr12MoV turbine steel in early condensate in the presence of acetic acid was studied by weight loss test, surface analysis and Potentiodynamic polarization. The results showed that acetic acid accelerate corrosion of 2Cr12MoV turbine steel to some extent. By the concentration of acetic acid in solution increased to 5 ppm, anodic polarization behavior of 2Cr12MoV turbine steel changes form active behavior to active, passive, and transpassive behavior. The critical passivation current density for 2Cr12MoV turbine steel in HAc solution is about 78μA/cm², with the increase of acetic acid concentration, the active-passive transition potential moves to the negative direction and the passive zone widened. The passivation of 2Cr12MoV steel is attributed to the formation of Fe(Ac)₂ layer.

Keywords: Blade steel, Acid corrosion, Acetic acid, Early condensate

FULL TEXT

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