Electrochemical Corrosion Behavior of 15Cr-6Ni-2Mo Stainless Steel with/without Stress under the coexistence of CO₂ and H₂S

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doi: 10.20964/2018.07.59

Received: 6 February 2018 / *Accepted:* 23 March 2018 / *Published:* 5 June 2018

An electrochemical study was performed on 15Cr-6Ni-2Mo stainless steel to evaluate its corrosion behavior. The specimens in the present study were divided into two groups: with and without applied stress. Three conditions were considered and showed significant influence on the corrosion behavior of 15Cr-6Ni-2Mo steel. When the conditions of coexisting CO₂ and H₂S were changed, the passivation state of the material surface had obvious differences. Applied stress decreased the corrosion potential and pitting potential and increased the pitting sensitivity of the materials. The influence of H₂S on the corrosion resistance of materials under stress was more obvious.

Keywords: Stainless Steel, Polarization curves, Stress corrosion, Corrosion Behavior, Pitting potential

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