

论文

SPV50Q钢在含H₂S酸性环境下的腐蚀特性

唐建群; 巩建鸣; 涂善东

南京工业大学

摘要:

利用动电位极化和交流阻抗技术,研究了SPV50Q钢在含H₂S酸性环境下的腐蚀特性。结果表明, H₂S的存在对钢腐蚀过程影响很大, 腐蚀速度随H₂S浓度的增大而增大; 随pH值的降低和溶液温度的升高, 钢的腐蚀速度亦在不断增强; 尽管随浸泡时间的延长, 感抗弧半径不断增大, 但其变化幅度不大, 并在一定时间后减小, 表明钢表面所形成的硫化物膜保护性较差, 不能有效抑制钢的腐蚀。

关键词: 动电位极化 交流阻抗 SPV50Q钢 H₂S

Study on the corrosion properties of SPV50Q steel in H₂S-containing sour environment

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南京工业大学

Abstract:

The corrosion properties of SPV50Q steel were performed in H₂S-containing sour environment by potentiodynamic polarization measurement and electrochemical impedance spectroscopy (EIS). The results show that the presence of H₂S considerably influences the corrosion process of SPV50Q steel and its corrosion rate increases with increasing H₂S content. With decreasing pH and increasing in temperature of the testing solution, the corrosion of this steel is also enhanced. Although the semicircular diameter of capacitive loop increases with immersion time, its variation amplitude is not obviously great and begins to diminish after certain periodic time, suggesting that the sulfide film formed on the surface can not effectively prevent SPV50Q steel from avoiding the further corrosion.

Keywords: Potentiodynamic polarization EIS SPV50Q steel H₂S

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作者简介:

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