

论文

管线钢在近中性pH值溶液中的应力腐蚀开裂

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摘要:

用电化学极化测试技术、慢应变速率拉伸试验研究了 管道钢(16Mn钢)在近中性pH值溶液中的应力腐蚀行为,并探讨了外加电位、CO₂、温度等因素的影响.结果表明,应力腐蚀开裂为氢脆型应力腐蚀开裂;随着阴极电位的增加SCC敏感性增大,溶液中加入CO₂后对应力腐蚀有着明显的促进作用.

关键词: 近中性pH值 管线钢 应力腐蚀开裂

STRESS CORROSION CRACKING OF PIPELINE STEEL 16Mn IN SOLUTIONS WITH NEAR NEUTRAL pH VALUES

Abstract:

The stress corrosion cracking (SCC) behavior of pipe line steel (16Mn) in different solutions with near neutral pH values was studied with slow strain rate testing and electrochemical polarization technique. The effect of applied potential, CO₂ content and temperature on SCC behavior were investigated. The results showed that the crack development was mainly controlled by hydrogen-embrittlement stress corrosion cracking. Susceptibility to SCC increased as the cathodic potential increased. The addition of CO₂ to the solution also increased evidently the SCC.

Keywords: near neutral solutions pH pipeline steel SCC

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