

### 论文

动态载荷下LY12CZ的力学化学行为研究

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摘要:

应用动应变电极技术对慢拉伸状态下LY12CZ铝合金在3%NaCl溶液中的力学化学行为进行了研究,考察了在慢拉伸状态下应变幅和应变速率对LY12CZ在3%NaCl水溶液中的自腐蚀电位和瞬间腐蚀电流的影响规律,并且根据腐蚀电流的变化来阐述力学化学效应的大小和腐蚀裂纹的萌生规律。实验结果表明应变幅和应变速率对LY12CZ应变电极的力学化学行为有较为明显的影响,LY12CZ铝合金在慢拉伸状态下力学化学效应的大小取决于应变幅、应变速率和局部腐蚀状态等因素。

关键词: 应变电极 慢拉伸 力学化学效应 LY12CZ 铝合金

Effects of dynamic load to the electrochemical behavior of LY12CZ

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Abstract:

Strain electrode technique is applied to investigate the mechanochemical behavior of LY12CZ aluminum alloy in 3%NaCl aqueous solution in slow strain rate test, the effect of strain amplitude and strain rate to the corrosion potential and transient corrosion current density on LY12CZ strain electrode is researched, Meanwhile the initiation mechanism of corrosion crack is also discussed through the variation of transient current. Experimental results show that strain amplitude and strain rate can obviously affect the mechanochemical behavior of LY12CZ strain electrode, the extent of mechanochemical effect under slow strain rate of LY12CZ aluminum alloy depends on the factors such as strain amplitude, strain rate and localized corrosion situations.

Keywords: strain electrode slow strain rate test mechanochemical effect LY12CZ aluminum alloy

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