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论文

7175铝合金的应力腐蚀及晶界Mg偏析的作用

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摘要： 通过恒伸长速率试验和能谱分析，研究了7175铝合金在3．5%NaCl水溶液中的应力腐蚀行为及晶界的化学成分结果表明，7175铝合金在140℃，98h时效的强度较140℃，16h时效的强度略高，而且具有较好的抗应力腐蚀性能此外，晶界上Mg偏析浓度随着时效程度的增加而减小，且与合金的应力腐蚀敏感性密切相关

关键词： 7175铝合金 应力腐蚀 晶界偏析 氢脆 阳极溶解

THE STRESS CORROSION AND ROLE OF Mg SEGREGATED TO GRAIN BOUNDARY IN 7175 ALUMINIUM ALLOY

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Abstract: Both the stress corrosion behavior of 7175 aluminium alloy in 3.5%NaCl solution and the composition of grain boundary were investigated by means of constantelongation rate testing(CERT) and energy spectra. The results indicated that the strength of140℃, 98 h aging state is slightly higher than that of 140℃, 16 h, and the property of stresscorrosion resistance for the former better than the latter. In addition, the concentration of Mgsegregated to grain boundary decreases with increasing aging time, and it is closely related tothe SCC susceptibility of alloy.

Keywords: 7175 aluminium alloy stress corrosion grain boundary segregation hydrogen embrittlement anodic dissolution

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