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### 高强度铝合金显微组织高温原位研究

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### IN SITU OBSERVATIONS OF MICROSTRUCTURE OF HIGH-STRENGTH ALUMINIUM ALLOY AT HIGH TEMPERATURE

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摘要

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**摘要** 利用高压透射电镜对高强度铝合金LC4-CS进行高温原位组织观察,研究合金由完全时效状态快速瞬时加热到300℃过程中的显微组织变化,测定不同温度加热后的性能。试验证明,快速瞬时加热可以将晶间析出和基体沉淀,控制在预期的沉淀序列的不同阶段上。

**关键词:** 原位观察 快速瞬时加热 晶间析出

**Abstract:** The microstructures of LC4-CS high-strength aluminium alloy in the full-ageing state and during heating up to 300℃ were studied by high-voltage TEM. The parameters of microstructure in situ at different temperatures were calculated, and the corresponding mechanical properties and the stress-corrosion resistance were measured also. It has been proven that using the instantaneously rapid heating and cooling the grain boundary precipitation and precipitation within the matrix in different stages of ageing can be controlled. The optimum combination of properties can be obtained through reageing.

**Keywords:** in situ observation instantatneously rapid heating grain boundary precipitation

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