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快速凝固Al-Fe-MRE高温铝合金的研究

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THE DEVELOPMENT OF RAPID RESOLIDIFIED Al-Fe-MRE HIGH TEMPERATURE ALUMINUM ALLOY

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摘要 | 参考文献 | 相关文章

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摘要 研究快速凝固铝铁混合稀土高温铝合金的粉末制备及性能、粉末合金热成形、粉末合金的组织及性能的关系等。用氩气及氦气超音速雾化制得粉末获得的冷却速度为 5× １０３～ 7× １０６K/s。用金相及扫描电镜观察粉末颗粒的形貌呈球形 ,粉末尺寸越小 ,组织越细。通过对挤压成形的Al-Fe-MRE粉末合金的室温、高温及热暴露试验 ,得到其力学性能及影响性能的因素

关键词： 固化 耐热合金 铝合金 稀土元素

Abstract： Experiments were conducted to explore the high temperature resistant aluminium alloy Al Fe MRE.The problems studied include powder preparation and properties, heat forming of the powder alloy, relationship between its microstructure and properties, etc. Ar and He gas atomization processes were used to prepare the powder. It was found that the morphology is spherical and the smaller the particle size, the finer the microstructure. The cooling rate of powder particles increases with the decrease in particle size, and the He atomized gas provides a cooling rate 4~8 times as high as the Ar one. The resultant Al 8Fe MRE is of high mechanical properties both at room temperature and at elevated temperatures.

Keywords： solidification heat resistant alloys aluminium alloys rare earth elements

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