

燃料、元件及分析测试

合金化Mo-3Nb单晶微观组织分析

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摘要 对国产和俄罗斯产Mo-3Nb单晶进行了微观组织结构分析。结果表明: 俄罗斯单晶含有一定数量的棒状析出物, 国产单晶含有少量球状析出物, 且棒状析出物密度明显高于球状析出物; 俄罗斯单晶基体Nb含量略高于国内研制的单晶。同时, 力学性能测试结果表明, 俄罗斯Mo-3Nb单晶强度高于国产Mo-3Nb单晶。经合金强化机理分析认为, 微观组织结构和Nb含量是影响合金化Mo-3Nb单晶室温力学性能的主要因素。

关键词 [合金化Mo-3Nb单晶](#); [微观组织](#); [固溶强化](#); [析出相](#)

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Microstructure Analysis of Alloying Mo-3Nb Single Crystal Materials

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Abstract Microstructure of alloying Mo-3Nb single crystal materials supplied by Russia and China was analyzed, some bar-type precipitated phases were observed in Russian supplying materials, and there are few ball-type precipitated phases in the home-made single crystal materials, furthermore, the density of bar-type precipitated phases is much higher than that of ball-type precipitated phases. Otherwise, Nb component in Russian supplying materials is a little more than that in the home-made single crystal materials. At the same time, it is found that strength of the Russian supplying Mo-3Nb single crystal materials is higher than that of the home-made ones. Therefore, according to alloy strengthening mechanism, it is considered that microstructure and component are the main factors that influence the mechanical properties for alloying Mo-3Nb single crystal materials in room temperature.

Key words [alloying Mo-3Nb single crystal materials](#) _ [microstructure](#) _ [solid solution strengthening](#) _ [precipitated phase](#)

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