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等静压镁质陶瓷坩埚与高温合金液之间的界面物理化学作用

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STUDY ON THE INTERRACIAL PHYSICOCHEMICAL ACTIONS BETWEEN ISOSTATIC COMPACTED MAGNESIAN CERAMIC CRUCIBLE AND SUPERALLOY MELT

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摘要

从镁质陶瓷坩埚与K_3合金液之间的润湿性、界面渗透和化学反应等三方面较为系统地研究了坩埚与合金液之间的界面物理化学作用。结果表明,坩埚与合金液之间存在着复杂的化学反应;合金液通过侵蚀坩埚材料的基质部分破坏了坩埚表层的结构。

关键词： 陶瓷坩埚 高温合金 界面作用 表层剥落

Abstract:

This paper systematically studied the interfacial actions between magnesian ceramic crucible and K3 superalloy melt in terms of interfacial wettability, penetration and chemical reaction. The results show that the interfacial action destroyed the surface layer structure of crucible, and caused the spalling of surface layer of crucible. The melt eroding acting on the matrix of crucible refractory destroyed the combination between grain and matrix, and caused the grain to spall. There were intense and complex reactions between crucible surface layer and melt.

Keywords: ceramic crucible superalloy. interfacial action surface spalling

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