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A1ON的合成工艺

王习东^{1, 2}, 李文超¹

(1. 北京科技大学 理化系, 北京 100083;
2. 华东冶金学院 冶金系, 马鞍山 243002)

摘要: 分析了合成AlON的各种方法。用模式识别结合神经网络对碳热还原氮化合成AlON工艺进行了优化, 利用模式逆映射得到了理想的合成工艺参数。对AlON体系进行了热力学初步分析, 计算了温度为2 073 K时合成AlON的热力学参数状态图。根据热力学参数状态图所确定的条件, 热压合成了AlON陶瓷。对所合成的AlON试样进行了X射线衍射标定及部分物理性能的测定。其密度为3.63 g/cm³, 约为其理论密度的97.8%。

关键字: 氮氧化铝; 合成; 模式识别

Synthesis technology of AlON

WANG Xi-dong^{1, 2}, LI Wen-chao¹

(1. Department of Physical Chemistry, University of Science and Technology Beijing,
Beijing 100083, P.R.China;
2. Department of Metallurgy, East China University of Metallurgy,
Maanshan 243002, P.R.China)

Abstract: The synthesis technology of AlON ceramics was investigated. The program of pattern recognition was used to optimize the parameters of AlON synthesis process, and the proper parameters were obtained by inverse projection. The thermodynamic properties of AlON were preliminary analyzed and estimated, phase stability diagrams at 2 073 K were calculated. AlON ceramics was synthesized by hot-press sintering under the conditions given by phase stability diagram. The density of AlON is 3.63 g/cm³, about 97.8% of its theoretic density.

Key words: aluminum oxynitride; synthesis; pattern recognition

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地 址：湖南省长沙市岳麓山中南大学内 邮编： 410083

电 话： 0731-88876765, 88877197, 88830410 传真： 0731-88877197

电子邮箱： f-ysxb@mail.csu.edu.cn