

### 论文摘要

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## 氩气雾化喷射成形的镍基高温合金

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**摘要:** 利用氩气雾化喷射沉积技术制备了镍基高温合金沉积坯, 沉积坯整体致密、组织均匀、无宏观偏析、含气量低。从雾化颗粒特性、沉积坯的孔隙度、晶粒度、微观组织等方面评价了沉积坯质量, 并进行了工艺优化, 初步研究了沉积坯孔隙度的形成和影响机制。另外, 还研究了热等静压对沉积坯孔隙度和微观组织的影响。

**关键字:** 喷射成形 高温合金 孔隙度 微观组织 热等静压

## SPRAY FORMED NICKEL BASED SUPERALLOYS USING ARGON AS ATOMIZATION GAS

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**Abstract:** In order to reduce the porosity in argon spray formed super alloy preforms, the spray atomization and deposition variables were optimized. High-quality preforms with high-density, homogenous microstructures, segregation-free macrostructure and low gas contents were spray formed using argon as atomization gas. The deposited preforms were evaluated and the formation mechanisms of preform porosity were preliminarily investigated. The effects of hot isostatic pressing on the density and microstructure of argon spray formed Ni-base superalloy preforms were also studied.

**Key words:** spray forming; superalloys; porosity; microstructure; hot isostatic pressing

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