



论文摘要

中南大学学报(自然科学版)

ZHONGNAN DAXUE XUEBAO(ZIRAN KEXUE BAN)

Vol.40 No.3 Jun.2009

[PDF全文下载] [全文在线阅读]

文章编号: 1672-7207(2009)03-0670-06

W-Cu触头材料的微波烧结

郭颖利, 易健宏, 罗述东, 彭元东, 李丽娅

(中南大学 粉末冶金国家重点实验室, 湖南 长沙, 410083)

摘要: 采用微波烧结技术制备W-25Cu触头材料, 并与常规烧结进行对比。结果表明: 微波烧结升温速度快, 周期短, 能促进W-Cu材料的致密化; 在适当条件下, 微波烧结能获得相对密度达99.8%的W-Cu样品; 微波烧结能改善W-Cu样品中两相分布的均匀性和W晶粒尺寸的一致性, 但引起W晶粒的快速长大; Fe烧结助剂导致W-Cu材料显微组织均匀性变差, 并引起晶粒进一步粗化; 微波烧结技术能够应用于W-Cu材料的制备, 在缩短生产周期、降低生产成本方面具有潜在优势。

关键字: 微波烧结; W-Cu触头材料; 致密化; 显微组织

Microwave sintering of W-Cu contact materials

GUO Ying-li, YI Jian-hong, LUO Shu-dong, PENG Yuan-dong, LI Li-ya

(State Key Laboratory of Powder Metallurgy, Central South University, Changsha 410083, China)

Abstract: Microwave sintering of W-25Cu composites was presented, along with conventional sintering for a comparison. The experimental results show that microwave sintering promotes the densification of green compacts with higher heating rate and reduced sintering cycle. The sintered relative density of 99.8% can be achieved during microwave processing under appropriate conditions. In addition, microwave sintering improves the uniformity and homogenization of W grain size, and yet leads to growth of W grain. Fe sintering aid degrades the microstructure uniformity and further coarsens W grains. The present investigation demonstrates the feasibility of applying microwave sintering technique to consolidate W-Cu composites and its promising outlook in reducing production cycle and cost.

Key words: microwave sintering; W-Cu contact materials; densification; microstructure

