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论文

少量硼对Fe-Cu纳米粉粒固溶度的影响

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摘要: 用化学还原法制备了Fe—Cu过饱和团溶合金粉。Fe—Cu纳米粉中含有少量硼可扩展fcc相的成分范围。合金树体中Fe和Cu的原子比达到4: 1时, 主相仍保持fcc结构, Lcc相区的范围可超过采用机械合金化法制备的Fe—Cu合金。对样品的退火处理研究证明Fe—Cu系过饱和固溶合金的fcc相相当稳定。认为Fe—Cu合金的这种行为是由于合金中含有少量硼引起的。

关键词: 化学还原法 Fe—Cu合金 过饱和固溶体

EXTENDING OF THE SOLID SOLUBILITY OF Fe-Cu NANO-POWDER THROUGH ADDING MINOR BORON

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Abstract: The nanometre-sized Fe-Cu supersaturated solid solutions were prepared by chemical reduction. There is a small amount of boron dissolved in the alloys. The solid solubility of fcc-phase is largely extended to about an atomic ratio of 4: 1 for Fe and Cu. The range of fcc phase in the Fe-Cu alloy goes beyond the scope of that prepared by mechanical alloying. The fcc phase was found to be rather stable during heat treatment. The large solubility extending and high stability of fcc phase are caused by the small amount of boron contained in the alloys.

Keywords: chemical reduction Fe-Cu alloy supersaturated solid solution

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