

论文摘要

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热处理对CuCr(Zr)合金力学性能和导电性能的影响

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摘要: 制备了Cu-Cr和Cu-Cr-Zr二种合金板材, 研究了不同热处理工艺对合金的显微组织、力学性能和导电性能的影响。结果表明, 在本实验条件下, Cu-0.5Cr合金经960 °C, 1 h固溶和450 °C, 20 h时效后, 抗拉强度为363 MPa, 屈服强度为274 MPa, 延伸率为22%, 电导率达81%IACS; 添加微量Zr到Cu-0.5Cr合金中, 在不降低合金延伸率情况下, 合金强度可提高50 MPa, 但电导率降低约10%IACS。

关键字: Cu-Cr合金; Cu-Cr-Zr合金; 热处理; 显微组织

Effect of heat treatment on mechanical properties and electrical conductivity of Cu Cr(Zr) alloy

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Abstract: Cu-0.5Cr and Cu-0.5Cr-0.2Zr alloy plates were prepared. The effects of heat treatment on microstructure, mechanical properties and electrical conductivity have been studied. The results show that under 960 °C, 1h solution treating and 450 °C, 20 h aging condition, the tensile strength, yield strength, elongation and electrical conductivity of Cu-0.5Cr alloy can reach 363 MPa, 274 MPa, 22% and 81%IACS respectively. Adding 0.2%Zr to Cu-0.5Cr alloy, the tensile strength and yield strength of the alloy increase by about 50 MPa. However, under this condition the electrical conductivity of the alloy decreases by 10%IACS.

Key words: Cu-Cr alloy; Cu-Cr-Zr alloy; heat treatments; microstructures

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