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微量Zr对Cu-13Zn合金组织和性能的影响

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摘要: 制备了Zr含量不同的三种CuZn合金, 通过拉伸力学性能测试、金相和电镜观察, 研究了微量Zr对合金组织和性能的影响。结果表明, 微量Zr对合金有明显的强化和提高退火过程中抗软化温度的作用; 微量Zr引起的强化来源于再结晶晶粒细化强化, 含Zr的第二相析出强化和亚结构强化3个方面。

关键字: 锆; 铜合金; 显微组织; 力学性能

Influence of trace Zr on microstructure and mechanical properties of Cu-13Zn alloys

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Abstract: Three kinds of Cu-13Zn alloys with different Zr contents were prepared. The influence of trace Zr on the microstructure and mechanical properties of Cu-13Zn was studied by means of tensile test, optical microscopy and transmission electron microscopy. The results show that adding trace Zr to Cu-13Zn alloy can greatly increase the strength of the alloy and enhance the recrystallization temperature range during annealing after cold rolling. Fine grain strengthening, precipitation strengthening and substructure strengthening caused by compounds containing Zr should be responsible for the strengthening of Cu-Zn-Zr alloys.

Key words: Zr; copper alloys; microstructure; mechanical properties

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