



## 论文摘要

中南大学学报(自然科学版)

ZHONGNAN DAXUE XUEBAO(ZIRAN KEXUE BAN)

Vol.41 No.2 Apr.2010

[PDF全文下载] [全文在线阅读]

文章编号: 1672-7207(2010)02-0508-06

### 形变时效工艺对低铍Cu-Ni-Be合金力学性能和电导率的影响

刘楚明, 刘娜, 曾祥亮, 陈志永, 李慧中, 徐雷

(中南大学 材料科学与工程学院, 湖南 长沙, 410083)

**摘要:** 运用正交设计研究形变时效工艺(冷变形量、时效温度和时效时间)对低铍含量Cu-Ni-Be合金力学性能和电导率的影响, 并通过光学显微镜、扫描电镜和透射电镜对其显微组织进行分析。研究表明: 在形变时效处理的3个主要工艺参数中, 时效时间对抗拉强度、屈服强度和相对电导率的影响最大, 时效温度次之, 冷变形量最小; 合金在经过37.5%冷变形的轧制后, 在470 °C时效2 h,  $\gamma''$ 析出物细小且弥散分布在基体中, 合金具有较好的综合性能。

**关键字:** Cu-Ni-Be合金; 形变时效; 力学性能; 电导率  
中图分类号: TG156.93 文献标志码: A

### Effects of deformation aging on mechanical properties and electricity conductivity of Cu-Ni-Be alloy

LIU Chu-ming, LIU Na, ZENG Xiang-liang, CHEN Zhi-yong, LI Hui-zhong, XU Lei

(School of Materials Science and Engineering, Central South University, Changsha 410083, China)

**Abstract:** The effects of deformation aging process including the quantity of cooling deformation, the aging temperature and the aging time on the mechanical and electricity conductivity of Cu-Ni-Be alloy were studied. The microscopic structure of the alloy was observed by the optical microscope, the scanning electron microscopy and the transmission electronic microscopy. The results show that among the three parameters, the aging time has the heaviest impact on the tensile strength, the yield strength and the electricity conductivity, the next is the aging temperature, and the quantity of cooling deformation comes last. In detail, at 470 °C, 37.5 % of cold deformation aging for 2 h can get a type of alloy with best comprehensive quantity, in which abundant of exiguous and disperse  $\gamma''$  phase occurs.

**Key words:** Cu-Ni-Be alloy; deformation aging; mechanical property; electricity conductivity

# 有色金属在线

# 中国有色金属权威知识平台

版权所有：《中南大学学报(自然科学版、英文版)》编辑部

地 址：湖南省长沙市中南大学 邮编： 410083

电 话： 0731-88879765 传真： 0731-88877727

电子邮箱： zngdxb@mail.csu.edu.cn 湘ICP备09001153号