

论文

电子束辐照诱导Al₂Ni₃相的析出(英文)

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摘要: 用400kV透射电镜观察由N9R及2H马氏体组成的淬火Cu-11.2Al-2.9Ni合金样品时,发现大量弥散相因电子束辐照而析出电子衍射分析证实析出相为Al₂Ni₃.暗场像体视测量与高分辨显微术研究表明,辐照诱导析出不仅是表面反应. Al₂Ni₃粒子择优在晶体缺陷及马氏体界面处析出. 延长辐照时间,析出相长大并粗化.

关键词: Cu-Al-Ni合金 电子显微术 辐照缺陷 Al₂Ni₃析出相 马氏体结构

Al₂Ni₃ PRECIPITATION INDUCED BY ELECTRON BEAM IRRADIATION

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Abstract: An as-quenched Cu-11.2%(wt)%Al-2.9 (wt)%Ni alloy specimen. which consists of ordered N9R and 2H structure martensites, was examined by a 400 kV TEM. Large numbers of dispersive precipitates in the specimen are induced by the electron beam irradiation, These fine particles are identified as Al₂Ni₃ phase by electron diffraction. The stereoscopic measurement of the dark field TEM images combined with HREM study showed that this irradiation induced precipitation is not only a surface reaction. Al₂Ni₃ particles precipitate preferentially at crystalline defects and interfaces of the martensitic matrix. When duration of the electron beam irradiation lengthens. growth and coarsening of the precipitates are also observed.

Keywords: Cu-Al-Ni alloy electron microscopy irradiation effects precipitation of Al₂Ni₃ martensitic structure

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