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TC1钛合金透射电镜组织研究

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A STUDY OF MICROSTRUCTURE OF TC 1 ALLOY BY TRANSMISSION ELECTRON MICROSCOPY

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摘要

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摘要 用透射电镜研究TC 1 合金冷轧薄板在退火过程中精细组织的变化,揭示了位错组态与机械性能的关系。试验用料为厚0.8mm的TC 1 钛合金冷轧板,变形程度为33%,化学成分见表1。试验用退火温度见表2,退火保温时间为45min,采用普通电炉加热。退火后测定室温抗拉性能。

关键词:

Abstract: The effect of annealing temperature on microstructures of cold rolled TO alloy sheet has been investigated by transmission electron microscopy, and tensile properties have been determined after annealing at different temperatures. Experimental results show that elongated cells were formed in a phase of cold rolled TCl alloy sheet, the boundaries of cells consist of high density tangled dislocations when the annealing temperature rises from 773K to 923K. the dislocation density decreases; at the same time, tangled dislocations in cell boundaries change their combination forms gradually. When the annealing temperature rises to 823K, polygonization occurs) at this time, strength decreases, but ductility does not increase. It seems that polygonization is unfavourable tor ductility. When annealing is in the temperature range of 873K to 923K, dislocation arrays and net forms apoear, then ductility increases significantly. An annealing temperature of 853±10K is recommended for cold roll ed TCl titanium alloy sheet.

Keywords:

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