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电场退火对工业纯锌板再结晶组织的影响

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摘 要: 利用X射线衍射的三维取向分布函数, 研究工业纯锌板在160 °C时电场与非电场退火保温不同时间条件下的再结晶组织的形成与演变, 同时进行显微硬度测试。结果表明: 电场退火推迟轧制工业纯锌板再结晶进程, 从而导致电场退火样品的显微硬度值均高于非电场退火样品的显微硬度值。电场显著提高退火后样品的再结晶组织强度, 即电场明显促进冷轧{1018}面织构向再结晶{1013}<1011>板织构的演变, 而且这种影响在再结晶晶粒的长大阶段表现得尤为突出。电场并没有改变工业纯锌板退火过程中再结晶组织的形成机制。

关键字: 工业纯锌板; 电场退火; 再结晶组织; 取向分布函数; 硬度

Effects of electric field annealing on

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Abstract: Abstract: The effects of electric field on recrystallization texture evolution and microhardness in a pure zinc sheet during annealing at 160 °C for different times were studied by means of X-ray diffraction techniques. The microhardness was measured. The results show that the electric field retards the recrystallization process and decreases the microhardness of pure zinc sheet during annealing. The electric field annealing does not change the evolution mechanism of recrystallization texture in the pure zinc sheet, but strengthens the intensity of recrystallization texture, i.e. electric field annealing improves the evolution from cold rolled {1018} texture component to recrystallization {1013}<1011> texture component, especially at the stage of grain growth

Key words: pure zinc sheet; electric field annealing; recrystallization texture; ODF; hardness

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