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综述

水蒸汽影响氧化铝膜生长的研究新进展

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摘要： 氧化铝涂层是满足高温工业环境的最佳保护性氧化膜之一，能够有效保护钢材料在高温、强腐蚀环境下发生的腐蚀。随着工业的发展，水或者水蒸汽广泛存在于氧化铝膜的各类服役环境中，如何使氧化铝涂层在含水蒸汽的高温环境中保持优异的力学性能和寿命是工业中面临的一个重要的问题。本文综述了含水气氛对合金氧化铝的稳定性、生长动力学、膜的结合力和对氧化铝膜表面形貌的影响。

关键词： 氧化铝膜 水蒸汽 稳定性 氧化速率

PROGRESS OF WATER VAPOUR EFFECT ON GROWTH OF ALUMINA FORMING ALLOYS

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Abstract: Alumina coating has excellent thermal stability at elevated temperatures, this can provide a good diffusion barrier to withstand high temperature oxidation and therefore, increase their life time in aggressive atmospheres. With the industrial development, water vapour is present in nearly all atmospheres where alumina forming alloys are used at high temperatures for industrial process. The most important problem is that how to maintain excellent performance of alloy in humid atmospheres. This paper summarizes the effect of water or water vapour on the stability of alumina scales, growth kinetics, film adherence and alumina film surface morphology.

Keywords: alumina scale water vapour stability oxidation rate

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