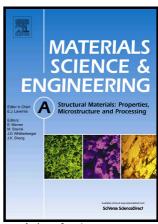
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Influence of Aging on Twin boundary

Strengthening in Magnesium Alloys

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Abstract

In order to investigate the effect of aging on twin boundary (TB) strengthening in

magnesium alloys, the cyclic compressions along two orthogonal directions of

samples with and without intermediate aging are carried out. The results show that

the grains in all Mg alloys AZ31, AZ61 and AZ91 are significantly refined by twin

boundaries (TBs). The TB strengthening is strongly dependent on both alloying

element content and aging. Although grain refinement by TB formation occurs in AZ31,

it exhibits slight strengthening effect even after aging. In contrast, significant TB

strengthening after aging is observed in Mg alloys AZ61 and AZ91 with high contents

of alloying elements.

Keywords: Magnesium alloy; Grain refinement; Twinning; Aging

1. Introduction

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