

## Corrosion Resistance of as-rolled Mg-Li-AlSi Alloys

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In this paper, single  $\alpha$ -phase alloys (Mg-4Li, Mg-4Li-3AlSi) and single  $\beta$ -phase alloys (Mg-12Li, Mg-12Li-3AlSi) were used as the research object. The corrosion behaviors of four alloys in 3.5wt% NaCl solution are investigated. The influence of elemental Al and Si on the corrosion resistance of the alloy is revealed. The corrosion resistances of  $\alpha$ -phase alloy Mg-4Li and Mg-4Li-3AlSi are obviously better than that of  $\beta$ -phase alloy Mg-12Li and Mg-12Li-3AlSi. The addition of Al-Si master alloy could increase the rate of hydrogen evolution and decrease the corrosion resistance of the alloy. The surface phase of the Mg-Li-AlSi is mainly consist of  $\alpha$ -Mg,  $\beta$ -Li, Mg(OH)<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> and Mg<sub>2</sub>Si.

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**Keywords:** Al-Si eutectic, Mg-Li alloys, precipitation, corrosion, rolling

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