Corrosion Performance of as-rolled Mg-8Li-xAl Alloys

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In this paper, corrosion performance of Mg-8Li-xAl alloys (Mg-8Li, Mg-8Li-2Al, Mg-8Li-3Al, Mg-8Li-4Al, wt.%) in different corrosive environments were investigated by means of Scanning electron microscope (SEM), Energy-dispersive X-ray spectroscopy (EDS) and Electrochemical impedance spectroscopy (EIS). The microstructure of alloys were studies before and after the corrosion in the air and the hydrogen evolution performance in NaCl solution. The influence of elemental Al on the corrosion resistance of the alloy is revealed. When the Al content exceeds 3%, the corrosion resistance of Mg-8Li alloy in air can be obviously improved. Meanwhile, the corrosion resistance of the alloy is continuously declining in NaCl solution with the increase of aluminum content.

Keywords: Mg-8Li-xAl alloys, microstructure, hydrogen evolution, corrosion, EIS

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