

Comparative Study on the Precipitation Behavior in Two Al-Mg Alloys (Al-12 wt. % Mg and Al-8 wt. % Mg)

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Abstract : Aluminum-magnesium alloys are widely used in industry thanks to their mechanical properties and corrosion resistivity. These properties are related to the magnesium content and to the applied heat treatments. Although they are already well studied, questions concerning the microstructural stability and the effect of different heat treatments are still being asked. In this work we have presented a comparative study on the behavior of the precipitation reactions during different heat treatment in two different Al-Mg alloys (Al-8 wt. % Mg and Al-12 wt. % Mg). For this purpose, we have used various experimental techniques as dilatometry, calorimetry, optical microscopy, and microhardness measurements. The obtained results shown that, the precipitation kinetics and the mechanical responses to the applied heat treatments, of the two studied alloys, are different.

Keywords : Al-Mg alloys, precipitation, hardness, heat treatments

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