

Precipitation Kinetics of Al-7%Mg Alloy Studied by DSC and XRD

Authors : M. Fatmi, T. Chihi, M. A. Ghebouli, B. Ghebouli

Abstract : This work presents the experimental results of the differential scanning calorimetry (DSC), hardness measurements (Hv) and XRD analysis, for order to investigate the kinetics of precipitation phenomena in Al-7%wt. Mg alloy. In the XRD and DSC curves indicates the formation of the intermediate precipitation of β -(Al₃Mg₂) phase respectively. The activation energies associated with the processes have been determined according to the three models proposed by Kissinger, Ozawa, and Boswell. Consequently, the nucleation mechanism of the precipitates can be explained. These phases are confirmed by XRD analysis.

Keywords : discontinuous precipitation, hardening, Al-Mg alloys, mechanical and mechatronics engineering

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