Internal Damping Depending on the Deformation Amplitude Measured on Magnesium Alloys

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The article is aimed on the analysis of the internal damping changes depending on the amplitude of the magnesium alloys AZ31 and AZ91 in as cast state. In experimental measurements was used only resonance method, which is based on continuous excitation of oscillations of the specimen and the entire apparatus vibrates at a frequency which is near to the resonance. Starting resonance frequency for all measurements was about f = 20470 Hz. These mechanisms have been studied by ultrasonic resonant apparatus. Damping capacity of alloys is closely tied to the presence of defects including solute atoms, second phases and voids. The interaction between moving dislocations and point defects is one of the major internal damping mechanisms of magnesium alloys so the precipitates influence the damping capacity and contribute to damping properties.

Keywords: Vibration Amplitude, Deformation Amplitude, Magnesium Alloy, Internal Damping, Resonant Frequency

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