

Abstract: The objective of this thesis is to investigate the mechanical and damping properties in AZ91 alloys with different boron concentrations and in two experimental alloys based on commercial pure magnesium. Further aim is to identify the influence of heat treatment of alloys AZ91+B on the properties mentioned above. Micro-structural observations were achieved by optical and scanning electron microscope. Mechanical tests were performed in a wide range of temperatures from 23°C to 300°C and, simultaneously, the acoustic emission was recorded at room temperature. The temperature spectrum of internal friction was determined in the temperature range from 23°C to 400°C. Moreover, the amplitude dependence of damping properties of materials were studied. Phenomena leading to dissipation of mechanical energy in the temperature spectrum were determined by micro-structural observation.