Title: Influence of heat treatment on deformation behaviour of wrought Mg-Zn alloys

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Abstract: The aim of the present thesis is to understand an influence of heat treatment on microstructure and mechanical properties of extruded Mg-Zn based alloys containing an addition of Ca and Nd. Microstructural analysis provided by electron microscopy gave us information about homogeneity and distribution of precipitates in investigated Mg alloys after extrusion and a subsequent heat treatment. Microhardness and compression test along the extrusion direction have been performed to determine optimal aging conditions for achieving better mechanical properties, such as hardness and strength. The acoustic emmision technique was used to follow active deformation mechanisms during plastic deformation. Application of the acquired knowledge in material research can contribute to design novel Mg alloys with enhanced mechanical properties for specific applications.

Keywords: magnesium alloys, isothermal aging, precipitation, mechanical properties