

Two experimental magnesium alloys containing neodymium and zinc (Mg-5Nd-1Zn and Mg-1Nd-1Zn) were processed by severe plastic deformation (SPD) method - equal channel angular pressing (ECAP). The influence of the processing on the microstructure was studied by light optical microscopy (LOM), transmission electron microscopy (TEM) and also scanning electron microscopy (SEM) including electron backscatter diffraction (EBSD). A significant grain refinement was observed after the final stage of ECAP in both alloys resulting in homogenous ultra-fine grained condition. Microstructure development had a significant influence on mechanical properties which were investigated by microhardness measurements and compression deformation tests. Both the yield compression strength $\sigma_{0,2}$ and the microhardness significantly increased compared to the extruded/as-cast counterparts.