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INFLUENCE OF ZNO COATING PARAMETERS BY NPVD METHOD ON PHYSICOCHEMICAL PROPERTIES OF MAGNESIUM ALLOY

Keywords: Magnesium alloys, nano pvd coatings, ZnO coating

Magnesium alloys are used in various industries. Due to their biodegradable properties, they can be successfully used for implants in medicine. Magnesium alloys have low density, mechanical properties similar to human bone and are biocompatible in the tissue environment. Due to the high reactivity of magnesium in the tissue environment, its rapid dissolution occurs. This phenomenon can be limited e.g. by applying a protective coating or modifying the chemical composition with appropriate alloying additives.

In this work, the magnesium alloy AZ31 was tested. A ZnO coating was deposited on AZ31 alloy by means of the nano PVD method. ZnO nanoparticles exhibit antibacterial properties, which can effectively inhibit bacterial reproduction, adhesion and biofilm formation. In the paper a preliminary investigation on produced layer properties and production technology of them is presented. Based on various research methods, like scratch test and potentiodynamic tests, it was found that there is a significant influence of the parameters of oxide layers deposition on their physicochemical properties.