

## Preparation and Properties of Composite Materials with Magnesium Matrix and Hydroxyapatite Reinforcement

Jiri Kubasek, Dalibor Vojtěch, Drahomir Dvorsky

Faculty of chemical technology, Department of Metals and Corrosion Engineering, UCT Prague, Technická 5 166 28 Praha 6 – Dejvice, Czech Republic. E-mail: jiri.kubasek@vscht.cz, vojtechd@vscht.cz, dvorskyd@vscht.cz

Magnesium materials seem perspective for application in the field of biodegradable implants. Such materials are gradually degraded, without the formation of toxic products in the organism. Different approaches have been performed to improve mechanical properties and corrosion resistance of magnesium based materials. Among them, preparation of composite materials with magnesium matrix and inorganic reinforcement is very attractive. Hydroxyapatite (HA) is considered as suitable reinforcement because it is included in human bones. Presence of HA in composite can support the process of osseointegration. The resulting properties of Mg-HA composites are affected by the amount and particle size of the HA as well as the actual process for the preparation of the composite. This paper deals with the preparation of composite materials of Mg-HA with different contents of HA reinforcement by suitable combination of powder metallurgy method (milling, pressing, extrusion and spark plasma sintering). The effect of these methods on final structure and mechanical properties was observed. All prepared composite materials were characterized by uniform distribution of reinforcement particles in the structure and slightly different mechanical properties based on HA content and preparation method.

**Keywords:** Magnesium, Composites, Hydroxyapatite, Mechanical properties

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