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THE INFLUENCE OF THE FOAMING AGENTS ON THE POROSITY OF THE PM HYDROXYAPATITE-BASED BIOCOMPOSITES PROCESSED BY TWO STEP SINTERING

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Abstract: Porous hydroxyapatite (HAp)-based biocomposites have been widely used in biomedical applications as artificial bone substitute making it an ideal candidate for cranial and vertebrae grafts [1, 2]. The trabecular or spongy bone tissue is an open-cell porous network having 40-90% porosity, while the cortical bone referring to the hard outer layer gives 3-12% porosity. Many techniques have been used to produce porous HAp bioceramics including polymeric sponge method, ceramic foaming, slip casting, gel-casting of foams and two step sintering. In this paper porous HAp-based bioceramics were obtained using the last technique. Two foaming agents, titanium hydride and calcium carbonate, are used to create cellular structure by liberation of gases as products of the thermal decomposition of the foaming material [3]. The aim of this study is to perform an analysis of the effect of the calcium carbonate in comparison with the conventional titanium hydride on the foaming process developed in HAp-based bioceramics. The foaming intensity was studied considering the type and weight fraction of the foaming agents.

Selective references:

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