

# 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.** This paper presents a comparative analysis of the foaming process developed in hydroxyapatite (HAp)-based biocomposites as a function of the foaming agent. The matrix of the biocomposite consists of either submicronic or micronic powder particles of HAp. The titanium hydride powder was added as reinforcement's precursor as well as blowing agent, and in order to increase the biocomposites' porosity calcium carbonate was added as space holder agent. The powders mixture was homogenized in a planetary ball mill with a single grinding bowl for 1 minute in air. Uniaxial cold compaction at 120-170 MPa was performed in order to obtain cylindrical green parts, which next were heated in argon atmosphere using the two step sintering technique at temperatures of 900 °C for 1 minute and 800°C for 450 - 600 minutes. The porosity of the biocomposite is analyzed through calculations and SEM and EDS analysis highlighting the influence of the above mentioned foaming techniques (blowing and space holder).

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