



Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION X
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 26-27. September 2022.

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Effect of high energy ball milling on sintering of MgO-TiO₂ system

S. Filipović¹, N. Obradović¹, W. G. Fahrenholtz², S. Smith², M. Mirković³, A. Peleš¹,
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Perovskite ceramic material based on MgTiO₃ is used in various types of electronic devices owing to its dielectric properties, high dielectric constant, and low losses. These features can be tailored by setting preparation conditions. Densification of magnesium titanate by Spark Plasma Sintering (SPS) was the aim of this work. First, the mechanical activation in the high-energy ball mill was applied on the powder of MgO-TiO₂ mixed in mole ratio 1:1. Prepared powder mixtures, activated for different times, were SPS sintered, at 1200 °C with a heating rate of 100°C/min. After reaching the desired temperature, a uniaxial pressure of 50 MPa was applied, and dwelled at this condition for 5 min, followed by cooling to room temperature at 5°C/min. The starting powders, activated mixtures, and sintered ceramics bodies were investigated by X-ray diffraction, scanning electron microscopy (SEM), and energy dispersive spectroscopy (EDS). The presence of the MgTi₂O₅ phase was noticed for the non-milled ceramics. In the samples obtained from milled powders, MgTi₂O₅ was detected in EDS spectra in a lower amount, below the threshold of the XRD method. Dielectric measurements were performed at a wide range of frequencies and temperatures. The highest value of the hardness was obtained from powder milled for 15 min before SPS.

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The influence of blood components as additives to implants on their regenerative properties.

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Vladimir Cvetković³, Ivica Vučković⁴, Milena Radenković², Sanja Stojanović^{1,2}

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Blood components such as blood clot, blood plasma, PRP (Platelet Rich Plasma), PRF (Platelet Rich Fibrin) and monocytes, when added to implants have been shown to modulate