

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

**Serbian Ceramic Society**  
**Institute of Technical Sciences of SASA**  
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**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35**  
**Sep 29<sup>th</sup> - Oct 1<sup>st</sup>, 2014, Belgrade, Serbia**

**Book title:** Serbian Ceramic Society Conference - ADVANCED CERAMICS AND APPLICATION III: Program and the Book of Abstracts

**Publisher:**

Serbian Ceramic Society

**Editors:**

Prof.dr Vojislav Mitić

Prof. dr Olivera Milošević

Dr Nina Obradovic

Dr Lidija Mančić

**Technical Editor:**

Prof. dr Olivera Milošević

**Printing:**

Serbian Academy of Sciences and Arts,

*Knez Mihailova 35, Belgrade*

Format

*Pop Lukina 15, Belgrade*

**Edition:**

150 copies

**Sculptural Concretes:** Rajko D. Blažić, High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

CIP - Каталогизacija у публикацији  
Народна библиотека Србије, Београд

666.3/.7(048)

66.017/.018(048)

SERBIAN Ceramic Society (Belgrade). Conference (3rd ; 2014 ; Beograd) Advanced Ceramics and Application : new frontiers in multifunctional material science and processing : program and the book of abstracts / III Serbian Ceramic Society Conference, 29th September - 1st October, Belgrade, 2014 ; [organized by] Serbian Ceramic Society ... [et al.] ; [editors Vojislav Mitić ... et al.]. - Belgrade : Serbian Ceramic Society, 2014 (Belgrade : Serbian Academy of Sciences and Arts). - 139 str. ; 30 cm

Tiraž 150.

ISBN 978-86-915627-2-4

1. Serbian Ceramic Society (Belgrade)

a) Керамика - Апстракти b) Наука о

материјалима - Апстракти c) Наноматеријали

- Апстракти

COBISS.SR-ID 209985036

**PS2-36**

### **Properties of Magnesium Titanate Ceramic Obtained by Two Stage Sintering**

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The aim of this paper was investigation of structural and electrical properties of magnesium titanate ceramic obtained mechanochemically and subjected to two stage sintering process. Mixtures of MgO and TiO<sub>2</sub> were treated in a planetary ball mill for several time intervals ranging from 0 to 160 minutes. Powders prepared in this way were two stage sintered, at 1400 °C in air in the first stage, and then post-sintered by pressure assisted technique Hot Isostatic Pressing (HIP) at 1280 °C in argon atmosphere with a pressure of 200 MPa. X-ray diffraction was performed in order to established phase composition of obtained ceramics. Densities of sintered samples were measured by Archimedes method. The values of density were over 96 % of theoretical one and pure MgTiO<sub>3</sub> phase was observed. Morphology of sintered bodies was investigated by SEM, and micrographs indicate the final sintering stage and very dense ceramics. Electrical measurements were performed in the microwave field of frequency.