



**Serbian Ceramic Society Conference  
ADVANCED CERAMICS AND APPLICATION V  
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  
School of Electrical Engineering and Computer Science of Applied Studies**

**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35  
Serbia, Belgrade, 21st-23rd September 2016.**

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### **Characterization of zeolitic tuff from deposit Toponica near Kosovska Kamenica**

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In this paper are presented the results of mineralogical and crystallographic analysis of zeolitic tuff from deposits Toponica. Deposit of zeolitic tuff „Toponica“, is located in the eastern part of Kosovo. The geological structure of the zeolite tuff deposits make up the footwall stratum of Miocene (M) clay sandstone, white zeolite tuff horizon and roof seam Miocene shales, clay and gravel. For mineralogical analysis was used the optical microscope and SEM/EDS method. The basic minerals composition are presented with clinoptilolite-Ca, clay minerals, mica and feldspar. The XRPD method was used for crystallographic analysis, based the semi-quantitative phase analysis, in the zeolitic tuff is present ~ 89% clinoptilolite. The cation exchange capacity of zeolitic tuff is 140 meq / 100g, which this mineral raw material classified as extremely high quality and suitable for use in various industries.

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### **Characterization of microstructural and thermal properties of the steatite powders applied as fillers in the ceramic coatings**

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Steatite is a magnesium silicate multi-componential composite that can be synthesized from natural raw materials, and eventually produced via standard ceramic processing methods and readily machined or sintered into a variety of forms. Due to its excellent electrical properties, high mechanical resistance, low dielectric loss and high temperature resistance, steatite is widely utilized as a material for thermal insulation and heath protection. The raw materials used in steatite powder synthesis are: talc mixture for calcination, clay minerals as bonding agent, and feldspar or BaCO<sub>3</sub> as melting agents. The synthesis is usually conducted at approximately 1400°C, and its product is a crystalline phase of magnesium metasilicate (MgSiO<sub>3</sub>) obtained from talc, while melting agent forms a vitreous phase which melts and surrounds the crystalline phase. Steatite ceramics' fillers were fabricated via combined method of high-energy ball milling, cold pressing and sintering. The powder blends containing same amounts of components in all 4 mixtures were dry-pulverized for 30 min a laboratory mill, with ceramic vial and ceramic balls. After milling, the powders were compacted to cylindrical tablets with a diameter of 25 mm by uniaxial compression at 4 tons/cm<sup>2</sup>. The green compacts were sintered at 1000-1400°C