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ADVANCED CERAMICS AND APPLICATION

Organized by
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&
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PROGRAM AND THE BOOK OF ABSTRACTS

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The Influence of Synthesis Parameters on the Porous Structure of Ceramic Catalyst Supports

M. Stanković, Z. Vuković

University of Belgrade, Institute of Chemistry, Technology and Metallurgy - Department of Catalysis and Chemical Engineering, Njegoševa 12, 11000 Belgrade, Serbia

Ceramic catalyst supports form an important group of commonly used support materials in heterogeneous catalysis. They are primarily used in selective oxidation reactions. A variety of materials are used to prepare catalyst supports.

The samples of aluminosilicate and magnesium oxide ceramic supports which are used in selective partial oxidation catalysts to improve primarily their porous structure have been synthesized.

In order to optimize the synthesis parameters of the supports, the influences of the type, quantity and granulation of combustible additives, pressing pressure and thermal treatment of the supports to their porous structure have been investigated. Several catalyst support composites were made using petroleum coke and sawdust as combustible additives.

The porous structure of the samples was characterized by mercury porosimetry and nitrogen physisorption.

It is shown that different amount of combustible additives, various pressing pressure, as well as different thermal treatment used for the preparation of ceramic support samples lead to a change in the pore size, pore size distribution, and structure of pores.

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Microstructure and EDS Contact Surfaces Characterization for Statistical Analysis of Doped $BaTiO_3$-Ceramics

M. Miljković[1], V. Paunović[2], J. Nedin[2], V.V. Mitić[2,3]

[1]Center for Biomedical Investigation, Medical Faculty, University of Niš, Niš, Serbia,
[2]Faculty of Electronic Engineering, University of Niš, Niš, Serbia,
[3]Institute of Technical Sciences of SASA, Belgrade, Serbia

Barium-titanate based ceramics belongs to one of very important group of functional ceramics that can be used on a large scale of applications. The properties of $BaTiO_3$ based ceramics are fundamentally correlated with grain boundary effects and consequently with the microstructure developed during sintering process.

The purpose of this paper is an investigation of the effects of various dopants (La, Nb, Er, Yb, Ho, Sb) on the microstructure properties and contact surfaces.

The grain size and microstructure were investigated using SEM and EDS analysis.

SEM and EDS studies were performed by scanning electron microscopy (JEOL-JSM 5300) equipped with EDS (QX 2000S) system.