

Tenth Young Researchers' Conference
Materials Science and Engineering

December 21-23, 2011, Belgrade, Serbia
Serbian Academy of Sciences and Arts, Knez Mihailova 35 & 36

Program and the Book of Abstracts

Materials Research Society of Serbia
Institute of Technical Sciences of SASA

December 2011, Belgrade, Serbia

Book title:

Tenth Young Researchers' Conference - Materials Science and Engineering:
Program and the Book of Abstracts

Publisher:

Institute of Technical Sciences of SASA
Knez Mihailova 35/IV, 11000 Belgrade, Serbia
Tel: +381-11-2636994, fax: 2185263
<http://www.itn.sanu.ac.rs>

Editor:

Prof. Dr. Nenad Ignjatović

Technical Editor:

Aleksandra Stojičić

Printer:

Copy Planet
Brankova 12, 11000 Belgrade, Serbia
Tel: +381-11-3036545, fax: 3036546
<http://www.copyplanet.rs>

Edition:

130 copies

CIP - Каталогизacija у публикацији
Народна библиотека Србије, Београд

66.017/.018(048)

YOUNG Researchers' Conference Materials Science and Engineering (10 ; 2011 ; Beograd)

Program ; and the Book of Abstracts / Tenth Young Researchers' Conference Materials Science and Engineering, December 21-23, 2011, Belgrade, Serbia ; [organized by] Materials Research Society of Serbia and Institute of Technical Sciences of the Serbian Academy of Sciences and Arts ; [editor Nenad Ignjatović]. - Belgrade : Institute of Technical Sciences of SASA, 2011 (Belgrade : Copy Planet). - XV, 62 str. ; 30 cm
Tiraž 130. - Registar.

ISBN 978-86-80321-27-1

1. Materials Research Society of Serbia (Beograd) 2. Institute of Technical Sciences of SASA (Beograd)

a) Наука о материјалима - Апстрактни b) Технички материјали - Апстрактни
COBISS.SR-ID 188165900



I/3

One – pot synthesis of hydrophobic hydroxyapatite nano particles

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A highly hydrophobic oleic acid functionalized hydroxyapatite nanoparticles were obtained by the solvothermal method. Water solutions of reactants were added in mixture of oleic acid, triethanolamine and ethanol, which was then treated in Teflon lined autoclave. The chemical composition, size and morphology of as obtained particles were determined using XRD, FT IR, FE SEM and LD PSA. In addition, sintering behaviour and microstructure of prepared material were also examined.

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Synthesis and the effect of processing parameters on characteristics of poly- ϵ -caprolactone micro- and nanospheres

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Poly- ϵ -caprolactone (PCL) is a semicrystalline, biodegradable and biocompatible polymer. Its advantages, as high permeability to small drug molecules, failure to generate an acidic environment during degradation (as compared to polylactides and polyglycolides) and a slow degradation rate, make this aliphatic polyester suitable for extended long-term delivery over a period of more than one year. In this study PCL particles were prepared by physicochemical method with solvent/non-solvent systems. The synthetic polymer polyvinylpyrrolidone (PVP) and natural polymer poly (α , γ , L-glutamic acid) (PGA), were used as stabilizers and their influence on size and morphology of the particles was examined. The results were compared with those obtained without the use of stabilizers. Characterization of obtained particles was performed by Fourier transform infrared spectroscopy. The morphology and size distribution were determined using SEM and particle analyzer.