THIRTEENTH ANNUAL CONFERENCE

YUCOMAT 2011

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,
September 5-9, 2011
http://www.mrs-serbia.org.rs

Programme
and
The Book of Abstracts

Organised by:
Materials Research Society of Serbia

under the auspices of
Federation of European Material Societies
and
Materials Research Society

Title: THE THIRTEENTH ANNUAL CONFERENCE
YUCOMAT 2011
Programme and The Book of Abstracts

Publisher: Materials Research Society of Serbia
Knez Mihailova 35/IV, 11000 Belgrade, Serbia
Phone: +381 11 2185-437; Fax: + 381 11 2185-263
http://www.mrs-serbia.org.rs

Editor: Prof. Dr. Dragan P. Uskoković

Technical editor: Aleksandra Stojičić

Cover page: Aleksandra Stojičić and Milica Ševkušić

Acknowledgment:

Printed in: Biro Konto
Sutorina bb, Igalo – Herceg Novi, Montenegro
Phones: +382-31-670123, 670025, E-mail: bkonto@t-com.me
Circulation: 250 copies. The end of printing: August 2011

P.S.A.30.

CHEMICAL PRECIPITATION SYNTHESIS AND CHARACTERIZATION OF Zr-DOPED HYDROXYAPATITE NANOPOWDERS

M.J. Lukić[1], A. Stanković[1], Lj. Veselinović[1], S.D. Škapin[2], I. Bračko[2], S. Marković[1], D. Uskoković[1]
[1]*Institute of Technical Sciences of SASA, Belgrade, Serbia*
[2]*Jožef Stefan Institute, Ljubljana, Slovenia*

The great importance of hydroxyapatite in the field of biomaterial science inspires researchers to investigate various approaches to adjust and improve existing and to find out new useful properties of this class of materials. Doping of original hexagonal apatite crystal structure with a number of ions has been shown to improve phase stability, mechanical and electrical properties, as well as its biological applicability. Fabrication of Zr-HAp materials could be significant for mechanical properties improvement, teeth implant color adjustment, altogether with conserved bioactivity and without cell toxicity.

In this study, simple chemical precipitation is used to synthesize zirconium-doped hydroxyapatite, Zr-HAp, with 0, 1.0, 5.0 and 10.0 at.% of Zr. Phase purity was investigated by XRD, particles morphology by electron microscopy, while middle range arrangement and presence of different functional groups through IR and Raman spectroscopy studies. Efficiency of Zr-ions incorporation is checked by EDX chemical analysis.

P.S.A.31.

CASTABILITY OF ALUMINIUM ALLOYS

B. Zlatičanin, I. Bošković
Faculty of Metallurgy and Technology, Podgorica, Montenegro

Castability is the ability of an alloy to be cast without formation of defects such as cracks, segregations, pores or misruns. Alloy dependent phenomena that determine castability are fluidity, macrosegregation, hot tearing and porosity. These phenomena have been known for a long time but have only recently become well understood and work is underway to develop predictive castability models. These models require input of physical properties, such as solidification path, dendrite coherency, solidification shrinkage and interdendritic permeability. Some of these properties are difficult to determine experimentally but new experimental techniques are being developed to extract such data. This paper will review the phenomena that limit castability of aluminium alloys. The influence of alloy composition on fluidity, macrosegregation, hot tearing and porosity will be described. Models for castability prediction will be briefly reviewed and data on coherency, fluidity, permeability and shrinkage will be presented.