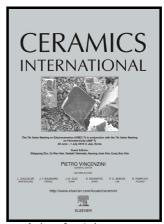
Author's Accepted Manuscript

Influence of deposition temperature on the properties of hydroxyapatite obtained by electrochemical assisted deposition

Cosmin M. Cotrut, Alina Vladescu, Mihaela Dinu, Diana M. Vranceanu



www.elsevier.com/locate/ceri

PII: S0272-8842(17)32167-3

DOI: https://doi.org/10.1016/j.ceramint.2017.09.227

Reference: CERI16398

To appear in: Ceramics International

Received date: 31 July 2017

Revised date: 1 September 2017 Accepted date: 28 September 2017

Cite this article as: Cosmin M. Cotrut, Alina Vladescu, Mihaela Dinu and Diana M. Vranceanu, Influence of deposition temperature on the properties of hydroxyapatite obtained by electrochemical assisted deposition, *Ceramics International*, https://doi.org/10.1016/j.ceramint.2017.09.227

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Influence of deposition temperature on the properties of hydroxyapatite obtained by electrochemical assisted deposition

Cosmin M. Cotrut^{1,2}, Alina Vladescu^{2,3}, Mihaela Dinu³, Diana M. Vranceanu^{1*}

¹University Politehnica of Bucharest, 313 Spl. Independentei, Bucharest, RO60042, Romania

²National Research Tomsk Polytechnic University, Lenin Avenue 43, Tomsk, 634050,
Russia

³National Institute for Optoelectronics, Department for Advanced Surface Processing and Analysis by Vacuum Technologies, 409 Atomistilor St., Magurele, RO77125, Romania

Abstract:

Surface functionalization of pure titanium (cp-Ti) with hydroxyapatite (HAp) was successfully achieved by means of electrochemical deposition (ED) in a solution containing calcium nitrate and ammonium dihydrogen phosphate. The aim of this study is to evaluate the influence of the deposition temperature on the elemental and phase composition, chemical bonds, morphology, and *in vitro* electrochemical behaviour in biological simulated media (simulated body fluid - SBF). The roughness and wettability of the developed coatings are also investigated. By increasing the deposition temperature from 50°C to 75°C, the HAp coatings present a well-crystalized structure, denser and a nobler behaviour in terms of electrochemical behaviour in SBF at 37°C. Also, by increasing the

^{*} Corresponding authors: Diana M. Vranceanu: Tel./Fax:+4021 316.95.63; email: diana.vranceanu@upb.ro

Download English Version:

https://daneshyari.com/en/article/7889211

Download Persian Version:

https://daneshyari.com/article/7889211

<u>Daneshyari.com</u>