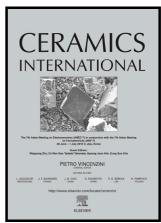
Author's Accepted Manuscript

Enhanced mechanical property of Ca₅(PO₄)₂SiO₄ bioceramic by a biocompatible sintering aid of zinc oxide

Fanyan Deng, Feng Wang, Ziwei Liu, Huamin Kou, Guofeng Cheng, Congqin Ning



www.elsevier.com/locate/ceri

PII: S0272-8842(18)31779-6

DOI: https://doi.org/10.1016/j.ceramint.2018.07.051

Reference: CERI18773

To appear in: Ceramics International

Received date: 19 June 2018 Revised date: 5 July 2018 Accepted date: 5 July 2018

Cite this article as: Fanyan Deng, Feng Wang, Ziwei Liu, Huamin Kou, Guofeng Cheng and Congqin Ning, Enhanced mechanical property of Ca₅(PO₄)₂SiO₄ bioceramic by a biocompatible sintering aid of zinc oxide, *Ceramics International*, https://doi.org/10.1016/j.ceramint.2018.07.051

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

Enhanced mechanical property of Ca₅(PO₄)₂SiO₄ bioceramic by a

biocompatible sintering aid of zinc oxide

Fanyan Deng^{a,c}, Feng Wang^a, Ziwei Liu^b, Huamin Kou^a, Guofeng Cheng^b,

Congqin Ning*a

^a State Key Laboratory of High Performance Ceramics and Superfine Microstructure,

Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China

^b Analysis and Testing Center for Inorganic Materials, Institute of Ceramics, Chinese

Academy of Sciences, Shanghai 200050, China

^c University of Chinese Academy of Sciences, No.19A Yuquan Road, Beijing 100049,

P.R. China

*Corresponding author: Email: cqning@mail.sic.ac.cn

Abstract

In the present work, a biocompatible additive ZnO was used to enhance the sintering of

calcium phosphate silicate (CPS)¹ bioceramic and improve its mechanical property.

Sol-gel prepared CPS powders were mechanically mixed with various amount of ZnO

and then sintered at high temperatures to prepare Zn-CPS bioceramics. The effects of

ZnO content and sintering temperature on microstructure and bending strength of

Zn-CPS bioceramics were investigated and the related mechanism was also discussed.

¹ CPS: Ca₅(PO₄)₂SiO₄

Download English Version:

https://daneshyari.com/en/article/8948524

Download Persian Version:

https://daneshyari.com/article/8948524

<u>Daneshyari.com</u>