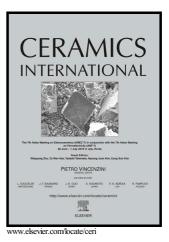
Author's Accepted Manuscript

Characterization of infrared transmittance in mixed transition metal oxides for solar cells application

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 PII:
 S0272-8842(17)31147-1

 DOI:
 http://dx.doi.org/10.1016/j.ceramint.2017.05.309

 Reference:
 CERI15469

To appear in: Ceramics International

Cite this article as: S.Y. Tsai, C.T. Ni and K.Z. Fung, Characterization of infrared transmittance in mixed transition metal oxides for solar cells applicatior *Ceramics International*, http://dx.doi.org/10.1016/j.ceramint.2017.05.309

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ACCEPTED MANUSCRIPT

Study of a Novel Hybrid Bone Cement Composed of γ-Polyglutamic Acid and Tricalcium Silicate

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Abstract

Tricalcium silicate (C₃S) has been used for biomedical materials. It has good biocompatibility and the ability to self-set, allowing it to serve as a bone cement. After setting, C₃S demonstrates some mechanical strength but is easily broken. γ -Polyglutamic acid (γ -PGA) is a natural, non-toxic, highly biocompatible and edible polymer. To improve the physical properties of tricalcium silicate cement, in this study, we prepared a γ -PGA/C₃S composite bone cement and tested its properties. The C₃S powder was synthesized by the sol-gel method and then mixed with different proportions of γ -PGA to form the solid agent. Moderate 10 wt% NaH₂PO₄ solution was subsequently added to form the composite bone cement. After characterizing the material and evaluating its biocompatibility *in vitro*, the potential of the composite to improve bone cement was investigated.

Keywords

Sol-gel processes; Composites; Silicate; Biomedical applications

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