

2011

# Porosity reduction model in titanium–hydroxyapatite FGM composites using shrinkage measurement

Ahmed A. Madfa

# Porosity reduction model in titanium - hydroxyapatite FGM composites using shrinkage measurement

## Abstract

A multilayered titanium (Ti)-hydroxyapatite (HA) functionally graded material was produced via pressureless sintering at 1100°C. The initial and final porosities were determined via shrinkage measurements. The final porosity verification was carried out by the Archimedes method. The experimental porosity measurements were compared with two proposed models. The macroscopic and microstructure features and the measured porosities confirmed that the volume fraction porosity was associated with both matrix and reinforcing particles in all cases. The percolation threshold was observed at  $x = 0.75$  in the  $x\text{Ti}+(1-x)\text{HA}$  mixture.

<b>Authors:</b>	Rahbari, RG ; Abu Kasim N.H. ; Madfa, AA ; Hamdi, M. ; Bayat, M.
<b>Journal:</b>	Materials Research Innovations
<b>Year:</b>	2011
<b>Pages:</b>	S110 – s113
<b>DOI:</b>	<a href="http://dx.doi.org/10.1179/143307511X13031890748281">http://dx.doi.org/10.1179/143307511X13031890748281</a>
<b>Publication date:</b>	01 August 2011

## Keywords :

Percolation threshold; Porosity reduction model; Shrinkage measurement; SELF-REPAIR; CULTURE-CONDITIONS; COMPOSITE RESIN; DENTAL PULP STEM CELL; FUNCTIONALLY GRADED DESIGN; MULTI LAYERED POST; FUNCTIONALLY GRADED DENTAL POST; SOFT SKILLS; CLINICAL PAIRING; DENTAL PULP STROMAL CELLS; LONG-TERM EXPANSION

**Please cite as :**

RAHBARI, R., Abu Kasim N.H. , MADFA, A., HAMDI, M. & BAYAT, M. 2011. **Porosity reduction model in titanium - hydroxyapatite FGM composites using shrinkage measurement.** *Materials Research Innovations*, 15, s110-s113.

**URL :**

<http://www.ingentaconnect.com/content/maney/mri/2011/00000015/A00201s2/art00028>