

Abstract Submitted
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Characterisation of a Hydroxyapatite and Carbon Nanotube Bioceramic Composite C. KEALLEY, B. BEN-NISSAN, University of Technology, Sydney, Australia, A. VAN RIESSEN, Curtin University of Technology, Australia, M. ELCOMBE, Australian Nuclear Science and Technology Organisation, Australia — A biocompatible composite for bone replacement applications was investigated. The effects that the microstructure may have on the mechanical properties of the bioceramic have been assessed. Hydroxyapatite was prepared as reported previously[1] with 2, 5 and 10 wt% of carbon nanotubes (CNTs) being incorporated during the production before hot isostatic pressing. Microstructural analysis of the composite has been undertaken by SEM/EDS, TEM/EDS, XRD and ND. The effects of concentration of the CNTs on the mechanical properties of the composite material have been determined. At 2 wt% excellent densification has been achieved, and there is a significant improvement in Vickers Hardness and Young's Modulus. However, as expected fracture toughness is reduced. [1] Lewis, K., Kealley, C., Elcombe, M., van Riessen, A., and Ben-Nissan, B. (2005), *J. Aust. Ceram. Soc.*, 41(2), p52-55.

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