World Academy of Science, Engineering and Technology
International Journal of Aerospace and Mechanical Engineering
Vol:9, No:03, 2015

Production and Characterization of Implant Material Produced by Using Electroless Ni Plated Al2O3-Co-Cr-Ti Powders

Authors : Ahmet Yonetken, Ayhan Erol

Abstract : The microstructure, mechanical properties and corrosion characteristics of Ni plated %10Al2O3-%40Co-%20Cr and %10Ti powders were investigated using specimens produced by tube furnace sintering at 800-1200°C temperature. A uniform nickel layer on Al2O3-Co-Cr and Ti powders was deposited prior to sintering using electroless plating technique. A composite consisting of quintet additions, a metallic phase, Ti,Cr and Co including a ceramic phase, alumina, within a matrix of Ni has been prepared under Ar shroud and then tube furnace sintered. XRD, SEM (Scanning Electron Microscope), corrosion behavior in acidic media were investigated to characterize the properties of the specimens. Experimental results carried out for composition (%10Al2O3-%40Co-%20Cr- %10Ti)20Ni at 1200°C suggest that the best properties as 312.18HV were obtained at 1200°C.

Keywords : sintering, intermetallic, Electroless nickel plating, composite
Conference Title : ICMCM 2015 : International Conference on Mechanics of Composite Materials
Conference Location : Madrid, Spain
Conference Dates : March 26-27, 2015