

Percentages of Alumina Phase and Different Ph on The Ha- Al₂O₃ Nano Composite

Authors : S. Tayyebi, F. Mirjalili, H. Samadi, A. Nemati

Abstract : In this study, hydroxyapatite-Alumina nano composite powder, containing 15,20 and 25% weight percent of reinforced alumina were prepared by chemical precipitation from the reaction between calcium nitrate tetrahydrate and di-ammonium hydrogen phosphate with ratio of Ca / p = 1.67 and different percentage of aluminum nitrate nona hydrate in different pH of 9,10 and 11. The microstructure and thermal stability of samples were measured by X-ray diffraction (XRD), infrared spectroscopy (FT-IR) and transmission electron microscopy (TEM). The results showed that the presence of reinforced alumina phase reduced the degree of crystallinity of hydroxyapatite phase and increased its decomposition to tricalcium phosphate phase. Microstructural analysis showed that the hydroxyapatite-alumina nano composite powder was obtained with spherical shape and size of less than 100 nm.

Keywords : biomaterial, hydroxyapatite, alumina, nano composite, precipitation method

Conference Title : ICEMA 2015 : International Conference on Engineering Materials and Applications

Conference Location : Paris, France

Conference Dates : July 20-21, 2015