

# **Production of Porous Hydroxyapatite Beads for Biomaterials Applications**

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Calcium phosphate (CaP) biomaterials are widely used as substitutes for bone graft when bone reconstruction is considered. Recent developments have interest in the potential of porous HAP as a synthetic bone graft. It is biocompatible and bioactive material that can be used to restore damaged human calcified tissue. Porous hydroxyapatite exhibits strong bonding to the bone, the pores provide a mechanical interlock leading to a firm fixation of the material. Porous hydroxyapatite is more resorbable and more osteoconductive than its dense counterpart and in porous form the surface area is greatly increased which allows more cells to be carried in comparison with dense hydroxyapatite. In this study, metal ion doped calcium phosphate based antibacterial powders were synthesized using wet chemical methods. After highly porous hydroxyapatite beads was to fabricated using organic pore forming agent. Organic pore forming agent and HAP nano powder in PVA added gel media were mixed and granulated in different bead size. Preformed bead were sintered between at 1200 – 1300° C to possess porous spherical beads. Microstructure and size of the fabricated HAP powder and HAP beads were characterized by scanning electron microscopy (SEM). Phase formation of the powder was monitored at room temperature by X-ray diffractometer (XRD).