

[54] **BIOACTIVE COMPOSITE MATERIAL  
PROCESS OF PRODUCING AND METHOD  
OF USING SAME**

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[57] **ABSTRACT**

The composite material for prosthetic purposes of the present invention is essentially composed of a plastic matrix, preferably of a methacrylate plastic, and at least one bioactive filler material, preferably a glass ceramic material of apatite crystal structure. The finely comminuted bioactive material may be homogeneously or nonhomogeneously incorporated in the plastic matrix. Reinforcing additives such as glass fibers and the like may also be incorporated into the mixture of plastic matrix and bioactive material in order to improve the mechanical strength properties. The bioactive material may be admixed to a mixture of methacrylate monomer and curing agent or to a prepolymer obtained therefrom. The composite material is useful as bone cement, bone or tooth replacement material, and in general for prosthetic purposes in surgery and orthopedics.

**23 Claims, No Drawings**