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Calcium Phosphate Dental Materials Produced with the Help of Natural Aluminosilicates

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Calcium phosphates are well known to be perspective as biomaterials, for example, the dental ones. There are two tendencies in investigation and design of such materials. They are the search of porous biomaterials and development of dense bioceramics on the basis of hydroxyapatite and crystallized calcium phosphate glasses. Control of glasses crystallization with the help of modifiers and nucleating agents is the main way for producing dense biomaterials [1,2]. We used natural aluminosilicates, for example, kaolin as a reagent and modifier for calcium polyphosphate to achieve a good quality of materials without stages of glass formation and glass crystallization.

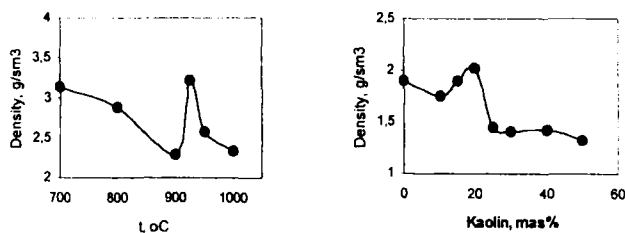


FIGURE Density of materials.

The results of the investigation showed that the interaction of calcium polyphosphate with kaolin starts at a rather low temperature but it is intensive at 900-950°C. The further increasing of temperature is not expedient, because of growth of the crystals and appearance of pores and the bubbles in products. Materials obtained at sintering of $\text{Ca}(\text{PO}_3)_2$ with 15-20% of kaolin have the best properties, good density, and