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Calcium orthophosphates hold special significance for human beings because they represent the inorganic part of major normal (e.g., bones and teeth) and pathological (i.e., those appearing because of various diseases) calcified tissues of mammals. Thus, because of a great chemical similarity to the biological calcified tissues, artificially prepared calcium orthophosphates possess remarkable biocompatibility and bioactivity. Materials scientists use this property extensively to construct artificial grafts of bones and teeth, which are either entirely made of or only surface-coated with calcium orthophosphates. In addition, calcium orthophosphates of a technical grade are very popular mineral fertilizers.

This monograph covers more than 3500 publications on calcium orthophosphates and, thus, provides the most comprehensive overview on the subject ever published. The areas of focus comprise the detailed description of all available calcium orthophosphates, including their biological and geological occurrence, preparation, chemical composition, brief information on the structure and properties, and applications. Particularly, the monograph focuses on the suitability of all available calcium orthophosphates for biomedical applications and their use as bone grafts in surgery and medicine.



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