

Enhance mechanical properties modified gelatin at different bloom index on calcium phosphate cement

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This work investigates the enhance mechanical properties modified gelatin at different bloom index on the setting time, compressive strength, phase evolution and microstructure of calcium phosphate cement. The composit cement powder (about 18% gelatin, and 82wt% α -tricalcium phosphate) was prepared from the solid compound obtained by casting a gelatin aqueous solution at different bloom index containing α -tricalcium phosphate. 5wt% of $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$ were added to the powder before mixing with the liquid phase. The cement formulation was prepared using liquid/powder ratios. The final setting times increase from 10min to more than 45min when the L/P ratio is 0.4ml/g. The presence of gelatin accelerates the setting reaction, and improves the mechanical properties of the cement. The compressive strength increases with the setting reaction up to 10.7- 14.0Mpa for the gelatin cements. The improved mechanical properties of the composite cements with respect to the controls can be related to their reduced total porosity and more compact microstructure.