

Ionic Conductivity of Poorly Crystalline Apatite: Effect of Maturation

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This study deals with the effect of maturation on the ionic conduction of poorly crystalline synthetic apatite. The tendency of this materials to crystallise during maturation is accompanied by an improvement of its ionic conductivity σ . At room temperature, σ increased by a factor of 300 after 50 days of maturation. The frequency dependence of the ionic conductivity was attenuated gradually during maturation. These results are explained by the short-range organisation of sites with time, and by the fact that the translational movement of the mobile ions becomes less hindered as the material matures.

Key words: Apatite; Maturation; Ionic Conductivity; Crystallinity.