

HIGHLIGHTS AND BREAKTHROUGHS

Thermodynamic approach provides insights into the aging process of biological apatite

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Abstract. In a recent of issue *American Mineralogist*, Rollin-Martinet et al. (2013, vol. 98, p. 2037–2045) take a thermodynamic, in contrast to a medical-biological, approach to the maturation process of biological apatite. They do so by focusing on changes in the HPO_4^{2-} concentration in biomimetic apatite over time. In this first-of-its-kind analysis, they conclude that the increase in stability of bone mineral over time ultimately demands that bone be remodeled (i.e., replaced by new bone) in order for the mineral to retain its biologically important functional properties. **Keywords:** Bone, bioapatite, maturation, remodeling, thermodynamics

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