

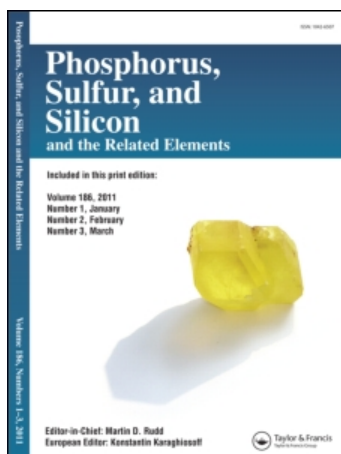
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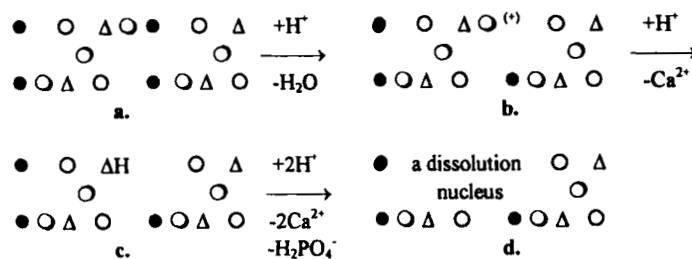
Surface Transformations of Hydroxyapatite During Acidic Dissolution

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 D-242, Russia

Chemical mechanism of hydroxyapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) dissolution in acids was found to occur on the liquid/solid interface by removing of single ions from the surface. The latter results an intermediate formation of acidic calcium phosphates (steps a – d):

Plane 001



Here: ● - hydroxyl; ○, ○, ○ - different ions of calcium; Δ - PO_4^{3-} ; ΔH - HPO_4^{2-} ; (+) - positive charge. Based on the scheme proposed, the smallest dimensions of a single dissolution nucleus are supposed to be equal to those of the unit-cell of hydroxyapatite ($9.4\text{\AA} \times 9.4\text{\AA} \times 6.9\text{\AA}$).