Supplementary files for **American Mineralogist paper; Nov Dec 2013, authors: Rollin-Martinet et al.**:

Figure AR1: TG analysis on nanocrystalline apatite. Graph: example for 20-min maturation time. Inlet: evolutions of weight losses Dm_1, Dm_2 and Dm_3 (as described below) versus maturation (SEM on Dm_1: 0.01%, SEM on Dm_2 and Dm_3: 0.1%)

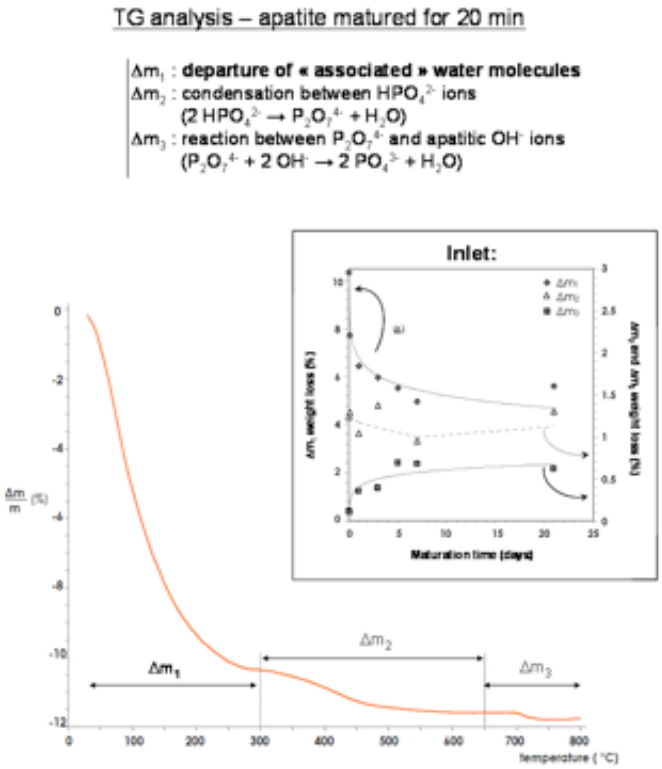


Figure AR2: Plot of Ca^{2+} and OH^- ion contents (± SEM) per apatite unit formula, versus maturation time

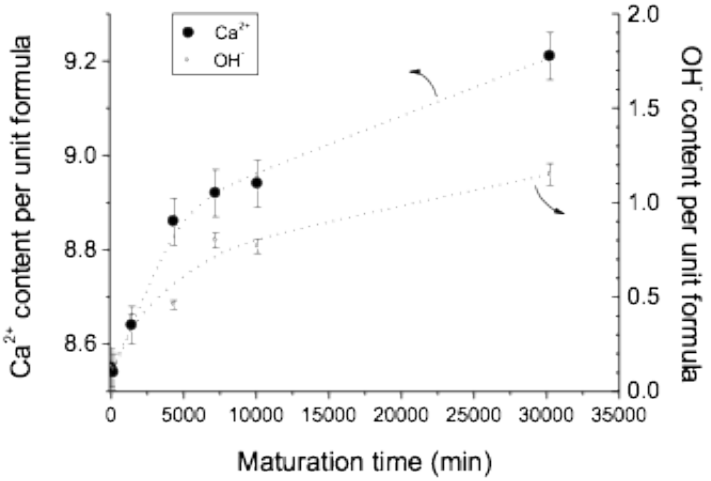
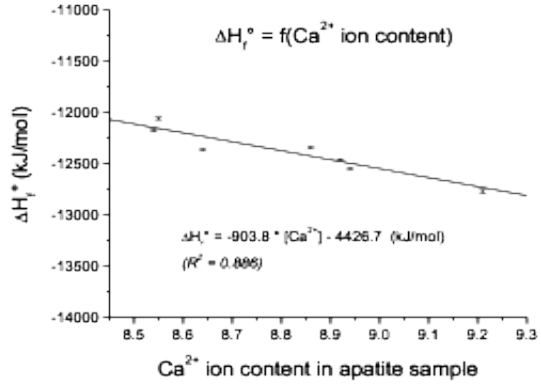
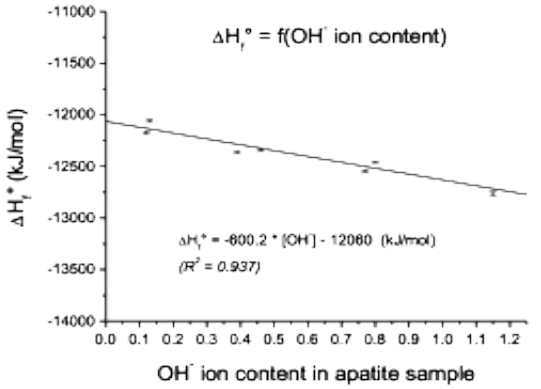


Figure AR3: Plots of $DH_f°$ versus Ca^{2+} (plot a) and OH^- (plot b) ion content in apatite, and of $DG_f°$ versus Ca^{2+} (plot c), and related linear fits

a)



b)



c)

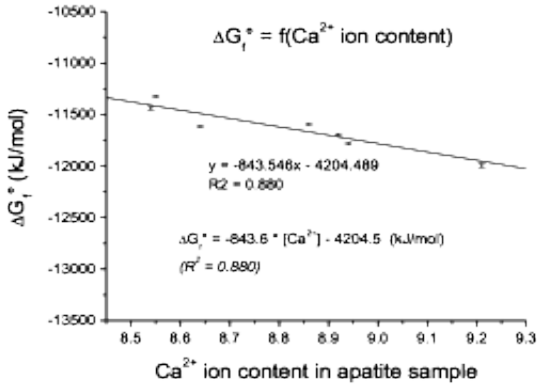


Figure AR4: Thermodynamic literature data for stoichiometric hydroxy-, fluor- and chlor-apatites (after Jemal et al. 1995; Jemal 2004; Ben Cherifa et al. 2004)

	$\Delta G_f°_{298}$ (kJ/mol)	$\Delta H_f°_{298}$ (kJ/mol)	$\Delta S_f°_{298}$ (kJ/(mol.K))
hydroxyapatites			
$Ca_{10}(PO_4)_6(OH)_2$	-12 674	-13 477	-2.69
$Sr_{10}(PO_4)_6(OH)_2$	-12 587	-13 373	-2.64
$Pb_{10}(PO_4)_6(OH)_2$	-7482	-8 261	-2.61
$Cd_{10}(PO_4)_6(OH)_2$	-7 873	-8 652	-2.61
$Ba_{10}(PO_4)_6(OH)_2$	-12 553	-13 309	-2.54
fluorapatites			
$Ca_{10}(PO_4)_6F_2$	-12 781	-13 558	-2.61
$Cd_{10}(PO_4)_6F_2$	-8 045	-8 795	-2.52
$Sr_{10}(PO_4)_6F_2$	-12 845	-13 604	-2.55
$Pb_{10}(PO_4)_6F_2$	-7 782	-8 529	-2.51
$Ba_{10}(PO_4)_6F_2$	-12 834	-13 564	-2.45
chlorapatites			
$Ca_{10}(PO_4)_6Cl_2$	-12 418	-13 180	-2.56
$Cd_{10}(PO_4)_6Cl_2$	-7 719	-8 463	-2.50
$Sr_{10}(PO_4)_6Cl_2$	-12 478	-13 233	-2.53
$Pb_{10}(PO_4)_6Cl_2$	-7 458	-8 220	-2.56
$Ba_{10}(PO_4)_6Cl_2$	-12 418	-13 246	-2.78

Figure AR5: Estimation of theoretical solubility products (at 298 K) for nanocrystalline apatites matured for varying periods of time, as drawn from $DG°_{disso}$ calculation