

Equation of State and Amorphization of $\text{Ca}_9\text{R}(\text{VO}_4)_7$ (R = La, Nd, Gd): A Combined High-Pressure X-ray Diffraction and Raman Spectroscopy Study

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Supporting Information Available: Lattice parameters of $\text{Ca}_9\text{R}(\text{VO}_4)_7$ (R = La, Nd, Gd) during compression and decompression.

Table S1. Lattice Parameters of $\text{Ca}_9\text{R}(\text{VO}_4)_7$ (R = La, Nd, Gd) as a Function of Pressure. Pressures Marked with Asterisks are Related to Decompression.

$\text{Ca}_9\text{La}(\text{VO}_4)_7$				
P [GPa]	V [\AA^3]	a [\AA]	c [\AA]	c/a
0.33(5)	3903(3)	10.880(5)	38.07(2)	3.499(2)
0.77(5)	3875(4)	10.849(5)	38.02(2)	3.505(3)
1.79(5)	3824(4)	10.789(6)	37.93(3)	3.516(3)
2.62(5)	3762(4)	10.727(5)	37.75(2)	3.519(3)
3.25(5)	3735(4)	10.695(6)	37.70(2)	3.525(3)
4.03(5)	3697(3)	10.651(5)	37.63(2)	3.533(3)
4.37(5)	3696(3)	10.651(5)	37.63(2)	3.533(4)
5.76(5)	3637(4)	10.593(7)	37.42(3)	3.533(3)
6.10(5)	3613(4)	10.567(6)	37.36(2)	3.536(3)
7.00(5)	3588(4)	10.541(6)	37.29(3)	3.537(3)
7.30(5)	3565(4)	10.517(6)	37.22(3)	3.539(3)
7.95(5)	3540(4)	10.494(6)	37.12(3)	3.537(3)
8.71(5)	3508(3)	10.460(5)	37.02(2)	3.539(3)
9.22(5)	3493(4)	10.444(6)	36.98(3)	3.540(3)
*0.00(5)	3913(4)	10.890(6)	38.11(3)	3.499(3)
*1.35(5)	3837(4)	10.807(5)	37.93(3)	3.510(3)
*4.20(5)	3700(4)	10.658(5)	37.62(3)	3.530(3)
$\text{Ca}_9\text{Nd}(\text{VO}_4)_7$				
P [GPa]	V [\AA^3]	a [\AA]	c [\AA]	c/a
0.25(5)	3871(2)	10.835(3)	38.08(1)	3.515(2)
0.71(5)	3852(2)	10.817(2)	38.01(1)	3.514(1)
1.32(5)	3822(2)	10.782(2)	37.96(1)	3.521(1)
1.79(5)	3792(2)	10.749(2)	37.90(1)	3.526(1)
2.12(5)	3772(2)	10.727(3)	37.86(1)	3.529(2)
2.89(5)	3740(2)	10.692(2)	37.78(1)	3.533(1)
3.73(5)	3698(1)	10.648(2)	37.67(1)	3.537(1)
4.28(5)	3677(2)	10.626(2)	37.61(1)	3.539(1)
4.84(5)	3650(2)	10.597(3)	37.52(1)	3.541(2)
5.68(5)	3618(1)	10.566(1)	37.42(1)	3.542(1)
6.10(5)	3602(2)	10.547(3)	37.39(1)	3.545(1)
6.52(5)	3582(2)	10.525(3)	37.33(1)	3.547(1)
6.94(5)	3565(2)	10.509(3)	37.28(1)	3.547(1)
7.73(5)	3543(2)	10.488(3)	37.20(1)	3.547(2)
8.38(5)	3524(3)	10.467(4)	37.14(2)	3.548(2)
8.72(5)	3512(2)	10.458(3)	37.09(1)	3.546(2)
9.11(5)	3501(3)	10.447(4)	37.04(2)	3.546(2)
*0.00(5)	3889(2)	10.859(3)	38.08(1)	3.507(2)
*0.95(5)	3845(2)	10.812(3)	37.99(1)	3.513(2)
*4.73(5)	3648(2)	10.603(3)	37.47(1)	3.534(2)

Ca₉Gd(VO₄)₇				
P [GPa]	V [Å³]	a[Å]	c[Å]	c/a
1.02(5)	3816(2)	10.779(3)	37.93(1)	3.518(1)
1.32(5)	3804(2)	10.765(2)	37.91(1)	3.521(1)
2.04(5)	3761(2)	10.713(2)	37.84(1)	3.532(1)
3.67(5)	3688(2)	10.637(3)	37.64(1)	3.538(1)
4.73(5)	3637(2)	10.581(2)	37.51(1)	3.545(1)
5.48(5)	3608(1)	10.549(2)	37.43(1)	3.548(1)
6.18(5)	3579(1)	10.519(2)	37.34(1)	3.550(1)
6.80(5)	3560(1)	10.499(2)	37.29(1)	3.551(1)
7.47(5)	3543(2)	10.481(2)	37.24(1)	3.553(1)
8.09(5)	3520(2)	10.458(4)	37.16(2)	3.554(2)
8.55(5)	3497(1)	10.434(2)	37.09(1)	3.555(1)
*7.84(5)	3510(1)	10.450(2)	37.12(1)	3.552(1)