No. 1C-a77 $PbTiO_3$–$LaO_{1.5}\cdot\alpha TiO_2$

1b	Phase diagram of $LaO_{1.5}$–PbO–TiO_2 system: Fig. 1C-a77-001. The composition is represented by a formula $Pb_{1-\alpha x}La_xTiO_{3+(1.5-\alpha)x}$. It is also expressed as $(1-\alpha x)PbTiO_3\cdot x\,(LaO_{1.5}\cdot\alpha TiO_2)$. Ferroelectric transition temperature: Fig. 1C-a77-002.	
3a	Lattice constant: Fig. 1C-a77-003; see also	72Sas
5a	Dielectric constant: Fig. 1C-a77-004.	
7a	Piezoelectricity: Fig. 1C-a77-005, Fig. 1C-a77-006.	
9a	Optical transmission: see	83Yam
10a	Raman scattering: Fig. 1C-a77-007, Fig. 1C-a77-008.	
16	Thin film: Nonlinear dielectric effect: see Pyroelectric effect: see Surface acoustic wave: see Refractive index: Fig. 1C-a77-009.	 93Fox 86Iij, 93Nag 85Ada

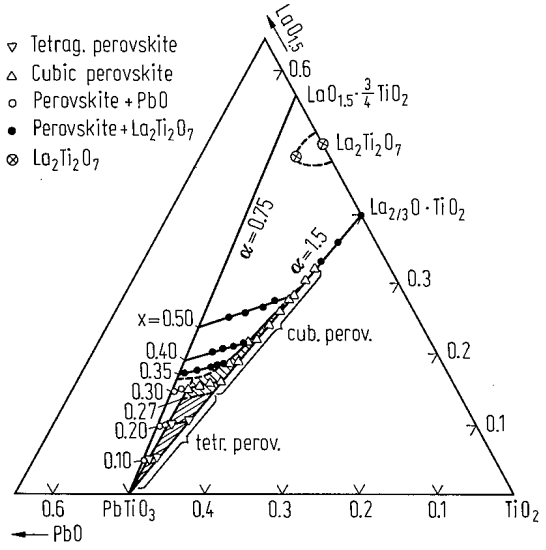

Fig. 1C-a77-001. $PbTiO_3$–$LaO_{1.5}$·αTiO_2. Phase diagram of $LaO_{1.5}$–PbO–TiO_2 system [71Hen]. Isotherm at 1330 °C, p = 1 atm O_2 (about 1bar). The composition is represented by $Pb_{1-\alpha x}La_xO_{3+(1.5-\alpha)x}$. The hatched area shows a single-phase range of perovskite structure.

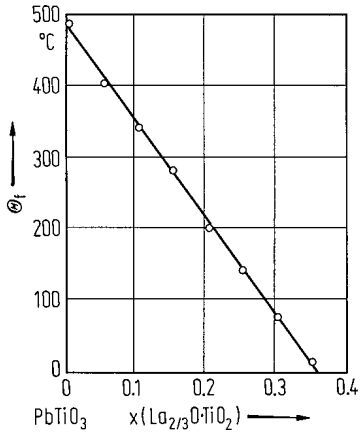

Fig. 1C-a77-002. (1–x)$PbTiO_3$·x ($La_{2/3}O{\cdot}TiO_2$). Θ_f vs. x [72Sas].

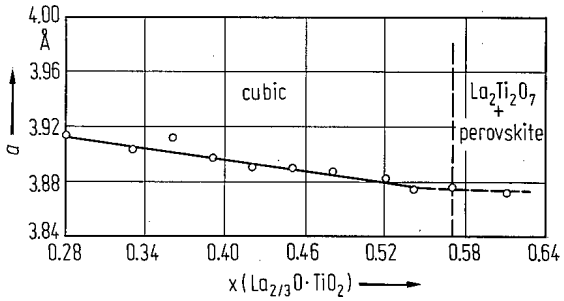

Fig. 1C-a77-003. $(Pb_{1-x}La_{2x/3})TiO_3$. *a* vs. x [71Hen]. *a*: lattice constant in the cubic perovskite phase.

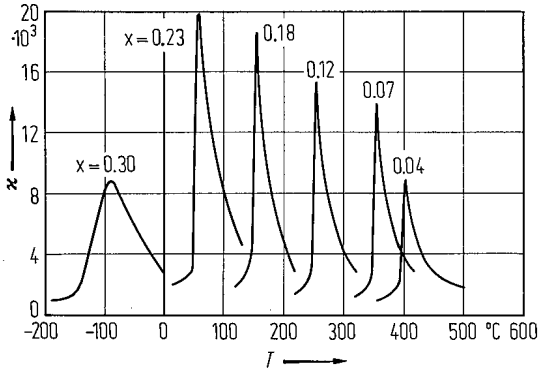

Fig. 1C-a77-004. $Pb_{1-1.3x}La_xTiO_{3+0.2x}$ (ceramics). κ vs. T [76Kei]. Parameter: x. f = 500 kHz. (α = 1.3 in the formula $Pb_{1-\alpha x}La_xTiO_{3+(1.5-\alpha)x}$.)

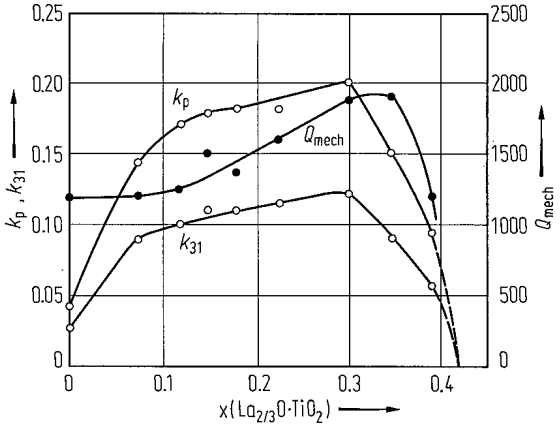

Fig. 1C-a77-005. $(Pb_{1-x}La_{2x/3})TiO_3$ (ceramics). k_p, k_{31}, Q_{mech} vs. x [77LuH].

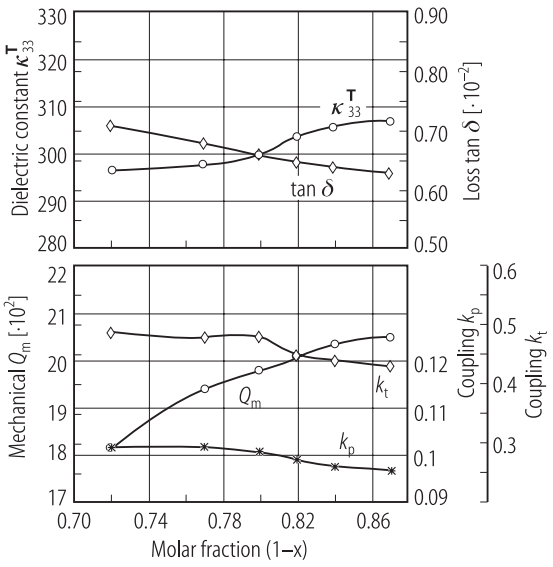

Fig. 1C-a77-006. $(Pb_{1-x}La_{2x/3})TiO_3$ (ceramics). κ_{33}^T, $\tan\delta$, k_t, k_p, Q_m vs. 1−x [93Lee]. Samples were poled under E_{dc} = 5 kV mm^{-1} at 160 °C. Additive: MnO_2 (0.5 wt % of the composition with x = 0.18).

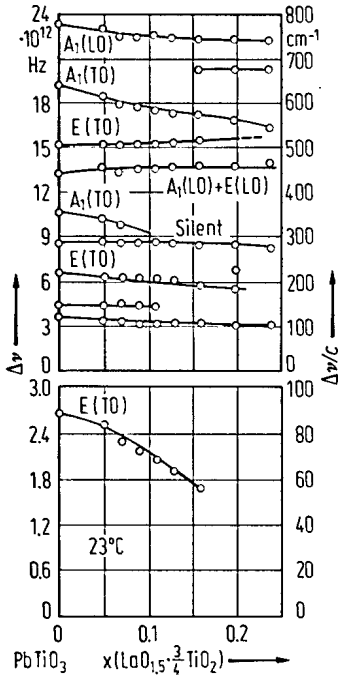

Fig. 1C-a77-007. $Pb_{1-x}La_xTi_{1-x/4}O_3$ (powdered sample). $\Delta\nu$ vs. x (at 23 °C) [73Bur]. $\Delta\nu$: Raman frequency shift. The labels on the left refer to the results on single crystal of $PbTiO_3$.

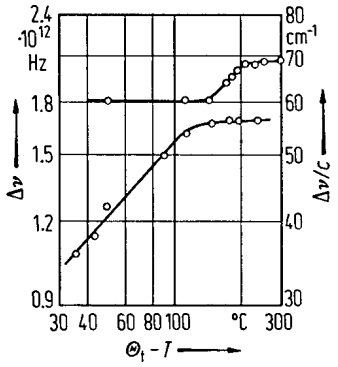

Fig. 1C-a77-008. $(Pb_{0.85}La_{0.15})TiO_3$. $\Delta\nu$ vs. $\Theta_t - T$ [75Mer]. $\Delta\nu$: Raman frequency shift of the two bands in the low frequency spectra of ceramic sample. The softening mode might be assigned as E(TO) mode.

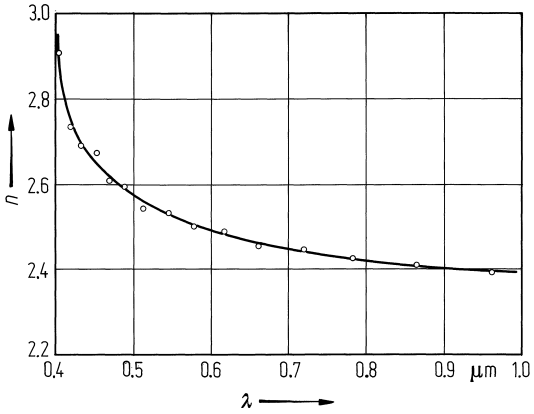

Fig. 1C-a77-009. $(Pb_{0.86}La_{0.14})TiO_3$ (thin film). n vs. λ [80Oku]. Film was prepared on MgO. (Composition is not exact).

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