

No. 1B-c15 $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$
($M = 388.2$)

1a	Antiferroelectric properties in $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$ were reported by Filip'ev et al. in 1963.			63Fil
b	phase	(III)	II	I
	state		A	P
	crystal system		monoclinic orthorhombic ^{a)}	cubic
	space group		$\text{Pbnm} - \text{D}_{2h}^{16}$	$\text{Fm}3\text{m} - \text{O}_h^5$
	$\Theta [^\circ\text{C}]$	193 ^{b)}		300
2a	Crystal growth: flux method ($\text{PbF}_2\text{--PbO--B}_2\text{O}_3$).			
3a	$a_o = 5.918 \text{ \AA}$, $b_o = 23.453 \text{ \AA}$, $c_o = 8.221 \text{ \AA}$ in the orthorhombic system. $a_p = b_p = 4.165 \text{ \AA}$, $c_p = 4.111 \text{ \AA}$, $\gamma_p = 89.47^\circ$ in the pseudocubic system.			91Kwo
b	Crystal structure: superstructure lines corresponding to ordering of Yb^{3+} and Nb^{5+} ions are found.			64Tom
4	Lattice distortion: Fig. 1B-c15-001. Thermal expansion: Fig. 1B-c15-002.			
5	Dielectric constant: Fig. 1B-c15-003, Fig. 1B-c15-004.			

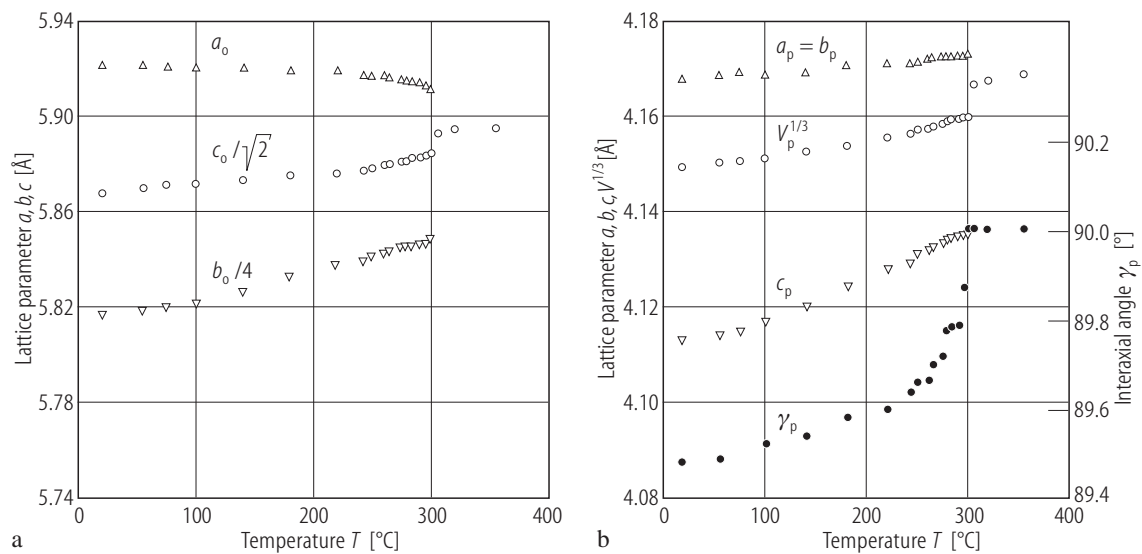


Fig. 1B-c15-001. $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$. a_o , b_o , c_o , $a_p = b_p$, c_p , γ_p vs. T [91Kwo]. **(a)** orthorhombic lattice parameters. **(b)** pseudocubic subcell parameters.

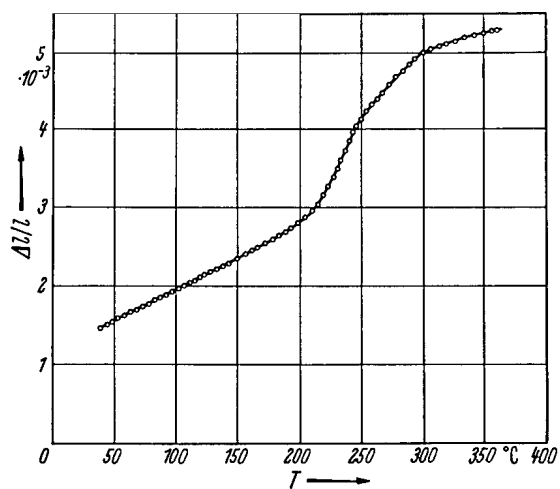


Fig. 1B-c15-002. $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$. $\Delta L/L$ vs. T [64Isu].

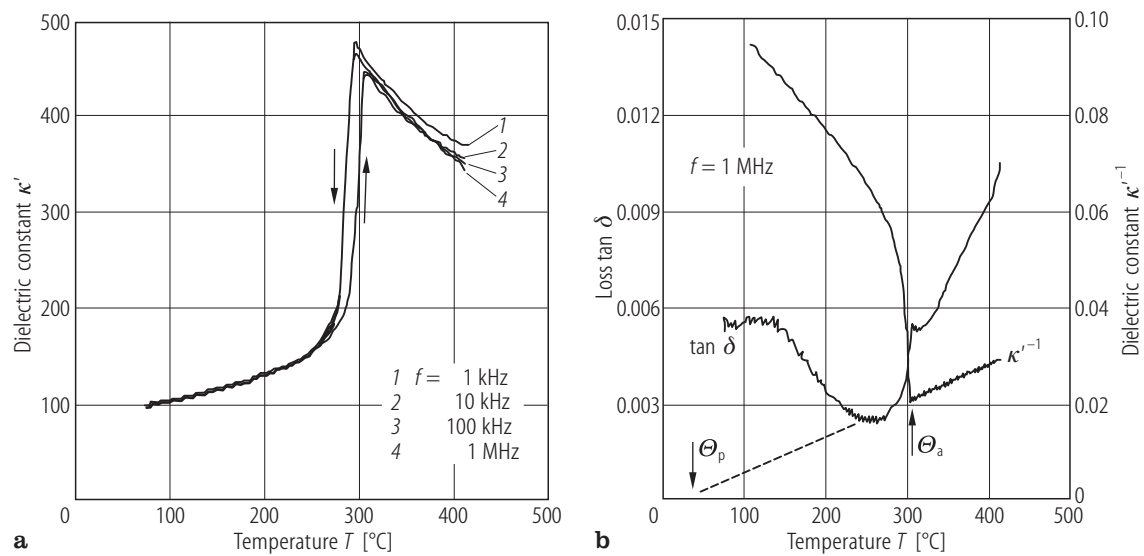


Fig. 1B-c15-003. $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$. κ' , κ'^{-1} , $\tan \delta$ vs. T [91Kwo]. Parameter for κ' : f . $f = 1$ MHz for κ'^{-1} , $\tan \delta$.

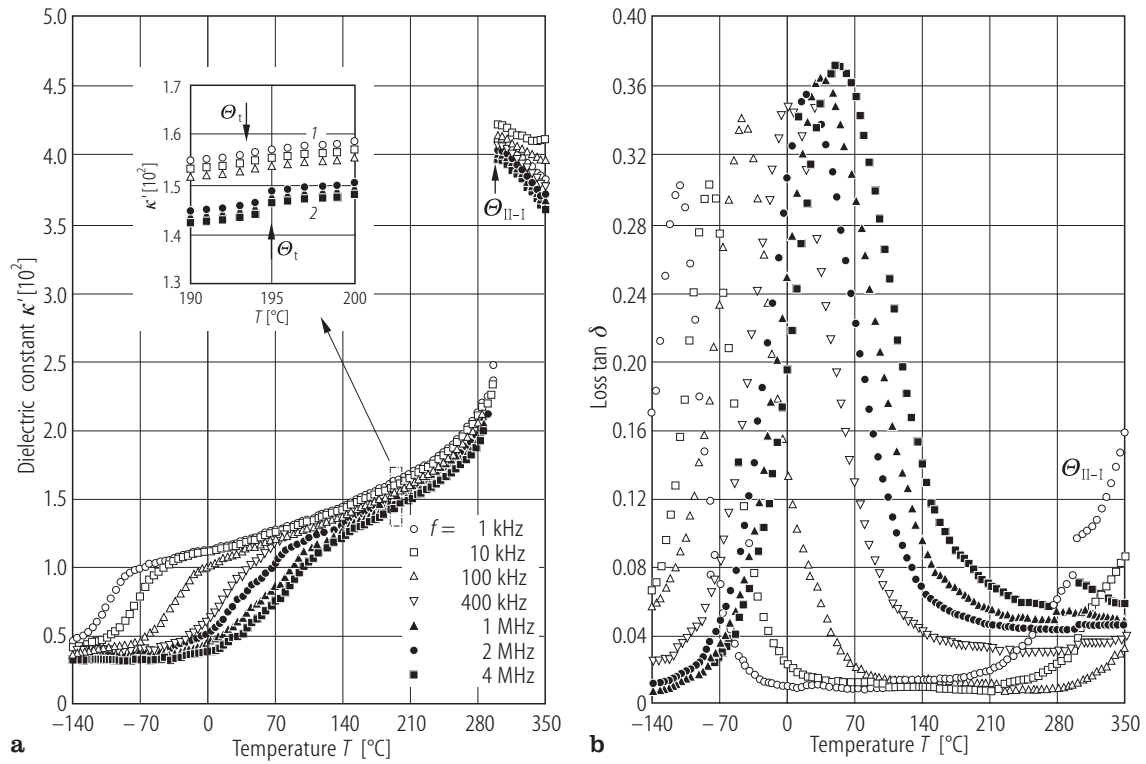


Fig. 1B-c15-004. $\text{Pb}(\text{Yb}_{1/2}\text{Nb}_{1/2})\text{O}_3$. κ' , $\tan \delta$ vs. T [91Yas]. Parameter: f . Insert shows details in the vicinity of $\Theta_t = 193$ K.

References

- 63Fil Filip'ev, V.S., Kupriyanov, M.F., Fesenko, E.G.: Kristallografiya **8** (1963) 790; Sov. Phys. Crystallogr. (English Transl.) **8** (1964) 630.
- 64Isu Isupov, V.A., Krainik, N.N.: Fiz. Tverd. Tela **6** (1964) 3713; Sov. Phys. Solid State (English Transl.) **6** (1965) 2975.
- 64Tom Tomashpol'skii, Yu.Ya, Venevtsev, Yu.N.: Fiz. Tverd. Tela **6** (1964) 2998; Sov. Phys. Solid State (English Transl.) **6** (1965) 2388.
- 65Kup Kupriyanov, M.F., Fesenko, E.G.: Izv. Akad. Nauk SSSR, Ser. Fiz. **29** (1965) 925; Bull. Acad. Sci. USSR, Phys. Ser. (English Transl.) **29** (1965) 930.
- 91Kwo Kwon, J.R., Choo, C.K.K., Choo, W.K.: Jpn. J. Appl. Phys. **30** (1991) 1028.
- 91Yas Yasuda, N., Inagaki, H.: Jpn. J. Appl. Phys. **30** (1991) L2050.