

No. 30A-3 RbNO₃, Rubidium nitrate*(M* = 147.47)

1a	Antiferroelectricity in RbNO ₃ was suggested by Dantsiger et al. in 1963 from dielectric measurements. Pyroelectricity in phase IV was found by Bury et al. in 1969.					63Dan 69Bur
b	phase	IV	III	II	I	
	state		(A) ^{a)}			^{a)} 63Dan
	crystal system	trigonal	cubic	trigonal	cubic	^{b)} 69Bur
	space group	P3 ₁ –C ₃ ² or P3 ₂ –C ₃ ^{3 b)}	Pa3–T _h ^{6 c)}	R $\bar{3}$ m–D _{3d} ^{5 d)}	Fm3m–O _h ^{5 d)}	^{c)} 51Kor ^{d)} 80Ath
	Θ [K]	437	492	564		56Ply
	$T_{\text{melt}} = 587 \text{ K}$.					56Ply
	$\rho = 3.11 \cdot 10^3 \text{ kg m}^{-3}$.					62Bro
	$\rho_{\text{X}} = 3.116(1) \cdot 10^3 \text{ kg m}^{-3}$ at 296 K.					92Poh
	Transparent, colorless.					
2a	Crystal growth: evaporation of aqueous solution; solubility in H ₂ O: Table 30A-3-001, or growth from melt.					
3a	Unit cell parameters in each phase:					
	phase	T [K]	p [GPa]	unit cell parameters		
	IV	299.5	0	$a = 10.502(1) \text{ \AA}$, $c = 7.473(1) \text{ \AA}$ *)		84Dea
	III	463	0	$a = 4.3718(2) \text{ \AA}$		80Ath
	II	503	0	$a = 4.8048(4) \text{ \AA}$, $\alpha = 70.491(5)^\circ$		80Ath
	I	568	0	$a = 7.3150(22) \text{ \AA}$		80Ath
	V **)	RT	2.8	$a = 5.667 \text{ \AA}$, $b = 5.181 \text{ \AA}$, $c = 4.798 \text{ \AA}$		79Kal
	*) For the hexagonal cell.					
	**) High-pressure phase; see Fig. 30A-3-009.					
b	phase	IV	III	II	I	68Sal
	Z	9 *)	1	1	4	
	*) For the hexagonal cell.					
	Crystal structure of phase IV: Table 30A-3-002, Table 30A-3-003; Fig. 30A-3-001, Fig. 30A-3-002, Fig. 30A-3-003; see also					84Dea
	Crystal structure of phase III, II, I: Table 30A-3-004, Table 30A-3-005, Table 30A-3-006, Table 30A-3-007; Fig. 30A-3-004; structure analysis on the basis of disorder model of NO ₃ group: see					87Sha
4	Thermal expansion: Table 30A-3-008; Fig. 30A-3-005, Fig. 30A-3-006. Thermal expansion of thin film: see					81Sao
5a	Dielectric constant: Fig. 30A-3-007, Fig. 30A-3-008.					
	Curie-Weiss behavior in phase II: $\kappa_a = C/(T - \Theta_p)$ with $C = 5.3 \cdot 10^3 \text{ K}$, $\Theta_p = 474.5 \text{ K}$.					63Dan
	κ_a : dielectric constant perpendicular to the trigonal [111] axis. $f = 1 \text{ MHz}$.					
	Phase diagram with regard to p : Fig. 30A-3-009; see also					79Kal

30 KNO₃ family

c	Effect of bias field on the dielectric constant: Fig. 30A-3-010.	
d	Pyroelectricity: Fig. 30A-3-011.	
6a	Heat capacity: Fig. 30A-3-012; see also	77Dik
9a	Infrared absorption: see	79Fer
10a	Raman scattering: see	73Bro, 74Bad, 79Owe, 81Ada, 82Med
11	Electrical conductivity: Fig. 30A-3-013; see also ac conductivity: Fig. 30A-3-014, Fig. 30A-3-015, Fig. 30A-3-016.	88Sad
14b	X-ray diffuse scattering: Fig. 30A-3-017, Fig. 30A-3-018, Fig. 30A-3-019.	