

25 KNiCl₃ family

25A Pure compounds

No. 25A-1 KNiCl₃, Potassium nickel trichloride

($M = 204.14$)

1a	Ferroelectricity in KNiCl ₃ was reported by Machida et al. in 1994.					94Mac
b	phase	V	IV	III	II	I
	state		F	F	F	
	crystal system					hexagonal
	space group			P6 ₃ cm – C _{6v} ³		
	θ [K]	274	285	561	762	
	$P_s \parallel c$.					94Mac
	KNiCl ₃ undergoes an antiferromagnetic phase transition at $T_N = 8.2$ K, where spin moments order takes place on the c plane.					89Tan
	Phase diagram of system KCl–NiCl ₂ : see					70Bel
	$T_{\text{melt}} = 917$ K.					94Kat
2a	Crystal growth: Bridgman method by melting a stoichiometric mixture of dried KCl and dried NiCl ₂ obtained by dehydrating NiCl ₂ · 6H ₂ O.					80Vis1
3a	Unit cell parameters of phase I: $a = 7.028(1)$ Å, $c = 6.040(1)$ Å at 823 K.					80Vis1
	Unit cell parameters of phase II: $a = 6.943(1)$ Å, $c = 5.974(1)$ Å at 623 K.					80Vis1
	Unit cell parameters of phase III: $a = 11.795(1)$ Å, $c = 5.926(1)$ Å at RT.					80Vis1
b	Structure of phase III: $Z = 6$; Table 25A-1-001, Table 25A-1-002; Fig. 25A-1-001.					
5a	Dielectric constants: Fig. 25A-1-002, Fig. 25A-1-003.					
c	Spontaneous polarization and coercive field: Fig. 25A-1-004, Fig. 25A-1-005.					
13b	ESR: see					89Tan
14	Disordered structure by electron diffraction : see					80Vis2