

No. 39A-6 K₂CoCl₄, Potassium tetrachlorocobaltate
 (*M* = 278.94)

1a	Ferroelectric activity in K ₂ CoCl ₄ was discovered by Yamaguchi et al. in 1988.				88Yam
b	phase	IV	III	II *)	I
	state		F	P	
	crystal system	monoclinic	orthorhombic		orthorhombic
	space group	C1c1–C _s ^{4 b)}	P2 ₁ cn–C _{2v} ^{9 a)}		Pmcn–D _{2h} ^{16 b)}
	Θ [K]	142 °)	454 °)	558 °)	
	*) Incommensurately modulated structure.				
	Monoclinic modification (space group P2 ₁ /c–C _{2h} ⁵) was reported at RT.				76Ver
	<i>P_s</i> [100].				
	<i>ρ_x</i> = 2.32 · 10 ³ kg m ^{–3} at 298 K.				91Mas
	Color: blue.				75Lam
	<i>T_{melt}</i> = 436 °C.				76Ver
2a	Crystal growth: Bridgman method from melt of KCl and CoCl ₂ in the molar ratio 2:1.				76Ver
3a	Unit cell parameters: <i>a</i> = 7.244(5) Å, <i>b</i> = 12.375(8) Å, <i>c</i> = 26.772(23) Å at 298 K (phase III); see also <i>a</i> = 14.415(5) Å, <i>b</i> = 24.582(13) Å, <i>c</i> = 26.687(20) Å, β = 90.03(4)° at 134 K (phase IV).				91Mas 76Ver 91Mas
b	<i>Z</i> = 4 at phase I. <i>Z</i> = 12 at phase III. <i>Z</i> = 48 at phase IV. Crystal structure of phase III: Table 39A-6-001, Table 39A-6-002; Fig. 39A-6-001, Fig. 39A-6-002. Crystal structure of phase IV: Table 39A-6-003, Table 39A-6-004; Fig. 39A-6-003. Static displacement and rotation of CoCl ₄ : Table 39A-6-005.				91Mas 76Ver 91Mas
4	Thermal expansion.				89Suz
5a	Dielectric constant: Fig. 39A-6-004. Θ _{IV–III} vs. <i>p</i> : Fig. 39A-6-005.				
c	Spontaneous polarization and coercive field: Fig. 39A-6-006, Fig. 39A-6-007; see also				89Yam
6a	Heat capacity: Fig. 39A-6-008. Transition entropy: Δ <i>S</i> _{IV–III} = 0.33 J mol ^{–1} K ^{–1} .				92Fle
14a	Structural modulation in phase II: Fig. 39A-6-009. Bragg reflection in phase IV: Fig. 39A-6-010.				
b	X-ray diffuse scattering around Θ _{IV–III} .				90Mas