

**No. 26A-4 BaCoF<sub>4</sub>***(M* = 272.26)

1a	Ferroelectric activity in BaCoF <sub>4</sub> was found by Eibschütz et al. in 1969.		69Eib
b	phase	II	69Kev
	state	AF <sup>magn a)</sup>	<sup>a)</sup> 72Eib
	crystal system	orthorhombic	
	space group	A2 <sub>1</sub> am–C <sub>2v</sub> <sup>12</sup>	
	$\Theta$ [K]	69.6(1) <sup>a)</sup>	
	$P_s \parallel [100]$ .		69DiD
	$T_{\text{melt}} = 855(5)^\circ\text{C}$ .		69DiD
2a	Crystals can be synthesized from the melt of high purity binary components BaF <sub>2</sub> and CoF <sub>2</sub> in an HF atmosphere. Single crystals can be prepared by a horizontal pass method.		68Eib
3a	Unit cell parameters: $a = 5.8519(3) \text{ \AA}$ , $b = 14.628(2) \text{ \AA}$ , $c = 4.210(3) \text{ \AA}$ .		69Kev
5a	Dielectric constant along the ferroelectric $a$ axis at 100 MHz: see Fig. 26A-1-001 in No. 26A-1. $\kappa_a = 10$ , $\kappa_b = 22$ , $\kappa_c = 8$ at 100 MHz at RT, and $\kappa_a \approx 400$ near the melting point ( $\approx 855^\circ\text{C}$ ). $P_s = 8(3) \cdot 10^{-2} \text{ C m}^{-2}$ at RT.		69DiD 69Eib
12	Magnetic susceptibility: Fig. 26A-4-001; see also Neutron diffraction pattern: Fig. 26A-4-002. Magnetic structure: Fig. 26A-4-003. Two dimensional antiferromagnet with $\Theta_N = 69.6 \text{ K}$ . Magnetic moment of Co <sup>2+</sup> at 4.2 K: $3.4(2) \mu_B$ . Magnetoelectric effect: see		71Zor  72Eib 72Eib 72Eib, 75Dvo, 72Zor