No. 26A-6 $BaZnF_4$

(M = 278.70)

1a	Ferroelectric activity in $BaZnF_4$ was found by Eibschütz et al. in 1969.		69Eib
b	phase	I	68Sch
	state	F	
	crystal system	orthorhombic	
	space group	$A2_1am$– C_{2v}^{12}	
	P_s || [100]. T_{melt} = 745(5) °C.		69DiD
2a	Crystals can be synthesized from the melt of high purity binary components BaF_2 and ZnF_2 in an HF atmosphere. Single crystals can be prepared by a horizontal pass method.		68Eib
3a	Unit cell parameters: a = 5.841 Å, b = 14.563 Å, c = 4.206 Å.		68Sch
b	Z = 4.		68Sch
	Crystal structure viewed along the c direction: Fig. 26A-6-001.		
	Approximate fractional coordinates of atoms at RT: all are 4(c) position (x, y, 0) of $A2_1am$ setting; Ba(0.249, 0.1477), Zn(0.282, 0.413), F(1)(0.592, 0.472), F(2)(0.472, 0.300), F(3)(0.021, 0.334), F(4)(0.311, 0.925).		68Sch
5a	Dielectric constant along the a axis at 100 MHz: see Fig. 26A-1-001 in No. 26A-1.		
	κ_a = 11, κ_b = 17, κ_c = 10 at 100 MHz at RT, and $\kappa_a \approx$ 64 near the melting point (≈745 °C).		69DiD
c	$P_s = 9.7(3) \cdot 10^{-2}$ C m^{-2} at RT.		69Eib
d	Pyroelectric behavior: see		77Gla
9a	Refractive indices: see Table 26A-1-003 in No. 26A-1.		
c	Nonlinear optical susceptibilities: see Table 26A-1-004 in No. 26A-1.		
10a	Raman scattering: Fig. 26A-6-002.		
13b	ESR of Ni^{2+}: see		86Rem
	ESR of Mn^{2+}: see		88YiY