

No. 35A-22 CsTiOAsO₄, Cesium titanyl arsenate (CTA)*(M* = 335.70)

1a	Ferroelectricity in CsTiOAsO ₄ was proven by hysteresis observation in 1993.		93Loi
b	phase	II	I
	state	F	P
	crystal system	orthorhombic	cubic
	space group	Pna2 ₁ –C _{2v} ⁹	Fd $\bar{3}$ m – O _h ⁷
	Θ [°C]	671(10)	
	$P_s \parallel [001]$.		93Loi
	$\rho_X = 4.511 \cdot 10^3 \text{ kg m}^{-3}$.		93Loi
	Transparent and colorless.		
	Cs ₂ O–TiO ₂ –As ₂ O ₅ ternary phase diagram: Fig. 35A-22-001.		
2a	Crystal growth: flux seeding method; solute: TiO ₂ –CsAsO ₃ , solvent: Cs ₄ As ₂ O ₇ –Cs ₂ WO ₄ –As ₂ O ₅ .		93Luo
	Crystal growth: flux: Cs ₅ As ₃ O ₁₀ .		94Che
	Self flux method: see		93Che
3a	Lattice parameters: $a = 13.494 \text{ \AA}$, $b = 6.8627 \text{ \AA}$, $c = 10.699 \text{ \AA}$, $V = 990.8 \text{ \AA}^3$;		93Loi
	$a = 13.50 \text{ \AA}$, $b = 6.8616 \text{ \AA}$, $c = 10.70 \text{ \AA}$, $V = 986.7 \text{ \AA}^3$;		93Luo
	$a = 13.486 \text{ \AA}$, $b = 6.8616 \text{ \AA}$, $c = 10.688 \text{ \AA}$, $V = 988.9 \text{ \AA}^3$.		89Pro
b	$Z = 8$.		89Pro
	Crystal structure: Table 35A-22-001, Table 35A-22-002, Table 35A-22-003.		
5a	Dielectric constant: Fig. 35A-22-002, Fig. 35A-22-003, Fig. 35A-22-004.		
c	$P_s = 144 \text{ C m}^{-2}$ at 22 °C.		93Loi
7a	Piezoelectricity: Fig. 35A-22-005.		
9a	Refractive indices: see Table 35A-6-013 in No. 35A-6. Transmission: Fig. 35A-22-006, Fig. 35A-22-007.		
b	Electrooptic coefficients at 633 nm and 1 kHz [pm V ^{–1}]: $r_{31} = 14.1$, $r_{32} = 18.4$, $r_{33} = 37.9$; see also Table 35A-6-018 in No. 35A-6.		
e	Nonlinear optical coefficients at 1.064 μm [pm V ^{–1}]: $d_{31} = 2.1$, $d_{32} = 3.4$, $d_{33} = 18.1$. See also Table 35A-6-018 in No. 35A-6.		93Che
11	Electrical conductivity: Fig. 35A-22-008; see also Fig. 35A-6-084 in No. 35A-6.		