

**No. 33A-10 TIH<sub>2</sub>AsO<sub>4</sub>, Thallium dihydrogen arsenate (TDA)***(M* = 345.32; [D: 347.33])

1a	A phase transition at 249 K was found by NMR study by Milia in 1978. Antiferroelectricity in the low temperature phase was suggested by Lee et al. in 1992.			78Mil 92Lee	
b	phase	III	II	I <sup>a)</sup>	<sup>a)</sup> 91Lee
	state	(A)		P	
	crystal system	monoclinic	monoclinic	orthorhombic	
	space group		P2 <sub>1</sub> /a–C <sub>2h</sub> <sup>5 b)</sup>	Pcan–D <sub>2h</sub> <sup>14 b)</sup>	<sup>b)</sup> 94Iro
	Θ[K]	249 <sup>c)</sup> 251 <sup>b)</sup>		391 <sup>b)</sup>	<sup>c)</sup> 78Mil
	$\rho_{\text{X}} = 5.102 \cdot 10^3 \text{ kg m}^{-3}$ . Transparent, colorless.				87Nar1 87Nar1
2a	Crystal growth: slow evaporation from aqueous solution.				87Nar1
3a	Unit cell parameters: Table 33A-10-001.				
b	Z = 4. Structure of TlD <sub>2</sub> AsO <sub>4</sub> is isomorphous with TlH <sub>2</sub> PO <sub>4</sub> and CsH <sub>2</sub> PO <sub>4</sub> . Crystal structure: Table 33A-10-002, Table 33A-10-003; Fig. 33A-10-001, Fig. 33A-10-002, Fig. 33A-10-003.				87Nar1 87Nar1
4	Distortion in monoclinic angle: Fig. 33A-10-003.				
5a	Dielectric constant: Fig. 33A-10-004, Fig. 33A-10-005, Fig. 33A-10-006.				
9a	Infrared transmission: see				87Nar2
10a	Raman scattering: Fig. 33A-10-007; see also				87Nar2
11	Electrical conductivity: see				87Nar3
13a	NMR of proton: Fig. 33A-10-008. NQR of <sup>75</sup> As: Fig. 33A-10-009.				
16	Optical observation of twin structure: see				94Iro