

38 $\text{Te}(\text{OH})_6 \cdot 2\text{NH}_4\text{H}_2\text{PO}_4 \cdot (\text{NH}_4)_2\text{HPO}_4$ **38A Pure compound**

**No. 38A-1 $\text{Te}(\text{OH})_6 \cdot 2\text{NH}_4\text{H}_2\text{PO}_4 \cdot (\text{NH}_4)_2\text{HPO}_4$,
Telluric acid ammonium phosphate (TAAP)**
($M = 591.75$; [D: 618.92])

1a	Ferroelectricity in Telluric acid ammonium phosphate (TAAP) was reported by Guillot Gauthier et al. in 1984.			84Gui	
b	phase	II	I	84Gui	
	state	F	P		
	crystal system	monoclinic	monoclinic	84Ave	
	space group	Pn-C _s ²		84Ave	
	Θ[°C]	48			
	P _s is approximately perpendicular to (101).			84Gui	
	ρ _x = 2.125 · 10 ³ kg m ⁻³ at RT.			84Ave	
2a	Crystal growth: recirculation method of aqueous solution.			84Nic	
3a	Unit cell parameters: a = 15.66(5) Å, b = 6.314(5) Å, c = 9.818(5) Å, β = 105.49(5)° at RT.			84Ave	
b	Z = 2. Crystal structure: Table 38A-1-001, Table 38A-1-002, Table 38A-1-003, Table 38A-1-004. Atomic arrangement: Fig. 38A-1-001.			84Ave	
4	Lattice distortion: Fig. 38A-1-002. Thermal expansion coefficient: Table 38A-1-005; see also			91Cza	
5a	κ, κ ⁻¹ vs. T: Fig. 38A-1-003, Fig. 38A-1-004, Fig. 38A-1-005. Effect of deuteration: Fig. 38A-1-006, Fig. 38A-1-007. Curie-Weiss constant: C = 2800 K [D: 4500 K]. Effect of hydrostatic pressure: Fig. 38A-1-008, Fig. 38A-1-009, Fig. 38A-1-010. Phase diagram of Θ _f vs. p: Fig. 38A-1-011. Effect of X-ray irradiation: Fig. 38A-1-012. Dielectric dispersion: Fig. 38A-1-013, Fig. 38A-1-014, Fig. 38A-1-015, Fig. 38A-1-016, Fig. 38A-1-017. Relaxation time: Fig. 38A-1-018; see also			88Sha	
b	Nonlinear dielectric properties: E = (1/χ _p)P + ξP ³ + ζP ⁵ ; ξ = 6.9(1) · 10 ¹¹ V m ⁵ C ⁻³ , ζ = 1.5 · 10 ¹⁵ V m ⁹ C ⁻⁵ . Effect of E _{bias} on κ: Fig. 38A-1-019.			90Cac	
c	Spontaneous polarization: P _s = 2.1 · 10 ⁻² C m ⁻² [D: 2.4 · 10 ⁻² C m ⁻²] at RT. Fig. 38A-1-020, Fig. 38A-1-021, Fig. 38A-1-022. Effect of hydrostatic pressure: Fig. 38A-1-023, Fig. 38A-1-024, Fig. 38A-1-025. Coercive field: E _c = 6.4 · 10 ⁴ V m ⁻¹ [D: 27 · 10 ⁴ V m ⁻¹] at RT.			88Sha	
e	Pyroelectric coefficient: Fig. 38A-1-026.			88Sha	

6a	Specific heat: Fig. 38A-1-027.	
8a	Elastic stiffness: Table 38A-1-006. Ultrasonic velocity and attenuation: Fig. 38A-1-028, Fig. 38A-1-029.	
9a	Orientation of optical indicatrix: Fig. 38A-1-030, Fig. 38A-1-031. Principal values of refractive indices: $n_1 = 1.537$, $n_2 = 1.534$, $n_3 = 1.545$ at $\lambda = 632.8$ nm, $n_1 = 1.522$, $n_2 = 1.519$, $n_3 = 1.529$ at $\lambda = 1152$ nm. Dispersion of refractive indices: Table 38A-1-007. Birefringence: Fig. 38A-1-032, Fig. 38A-1-033. Infrared spectra: see Table 38A-1-008 in 10a and	84Gui 87Sha
10a	Mode frequencies of Raman spectra: Table 38A-1-008; see also	87Sha
11	ac conductivity: see Fig. 38A-1-005 in 5a. Field-induced electron emission: see	94Bie
13a	NMR of ^{31}P : Fig. 38A-1-034.	
15a	Observation of domain structure: Etching method: see Scanning electron microscope: see	84Nic, 91Sha 93Ave
b	Switching time: Fig. 38A-1-035.	
16	Etchant for revealing domain structure and pits due to dislocation: mixture of 93% methanol, 5% water, 2% nitric acid. Twin structure, see	84Nic 84Nic