No. M26-ii $(NH_4)_2H_3IO_6$, Ammonium trihydrogen periodate

(M = 262.00; [D: 273.07])

1a Dielectric anomaly associated with a phase transition in $(NH_4)_2H_3IO_6$ was observed by Baertschi in 1943 [a]), and the possibility of antiferroelectricity was mentioned by Busch et al. in 1953 [b]). [a]) 43Bae [b]) 53Bus

b				
	phase	II [a])	I [a])	[a]) 43Bae
	state	(A) [b])	P [b])	[b]) 53Bus
	crystal system	trigonal	trigonal	
	space group	*)	$R\bar{3} - C_{3i}^{2}$ [c])	[c]) 68Gra
	Θ [K]	253 [a]) [266 for 87 % deuterated specimen] [d])		[d]) 55Abo

*) Space group $R\bar{3}c - D_{3d}^{6}$ or $R32 - D_3^7$ was mentioned on the basis of NMR measurements [71Kin], and $R3 - C_3^4$ based upon infrared measurements [76Roo].

2a Crystal growth: evaporation from a solution with excess NH_3. 45Bae

b Crystal form: rhombohedral. 37Hel

3a Unit cell parameters: a = 6.9233(5) Å, c = 11.1491(8) Å 80Tic
[D: a = 6.9308(6) Å, c = 11.1613(16) Å] at RT (phase I, hexagonal setting).
a = 13.842(5) Å, c = 11.157(5) Å at –45°C (phase II, hexagonal setting). In phase II, the unit cell is doubled for a: $a_{II} = 2a_I$, $c_{II} = c_I$. 68Gra

b Crystal structure:
Table M26-ii-001, Table M26-ii-002; Fig. M26-ii-001, Fig. M26-ii-002.
See also 37Hel

5a Dielectric constant: Fig. M26-ii-003; see also 45Bae

6a Heat capacity: Fig. M26-ii-004.
Transition heat and transition entropy:
ΔQ_m = 1463 J mol^{-1}, ΔS_m = 5.85 J K^{-1} mol^{-1}. 45Bae

9a Birefringence: Fig. M26-ii-005.
Reflection in infrared region: Fig. M26-ii-006.

10a Raman scattering: Fig. M26-ii-007.

13a NMR: Fig. M26-ii-008, Fig. M26-ii-009.
Proton magnetic resonance: see 59Bli
NQR of ^{127}I: Table M26-ii-003; see also 71Kin