

No. 32A-2 NH₄IO₃, Ammonium iodate

(M = 192.94)

1a	Polarization reversal in NH ₄ IO ₃ by poling was first reported by Oka et al. in 1976.				76Oka
b	phase	(IV)	III	II	I
	state		F ^{a)}		
	crystal system		orthorhombic ^{b)}	orthorhombic ^{c)}	cubic ^{c)}
	space group		Pc2 ₁ n–C _{2v} ^{9 b)}	Pm2 ₁ b–C _{2v} ^{2 d)}	
	Θ [°C]	–170 ^{c)} 82...95 *) ≈115 ^{c)}			^{c)} 74Sal
	<i>P_s</i> [010].				76Oka
	$\rho_X = 3.42 \cdot 10^3 \text{ kg m}^{-3}$.				71Kev
	Transparent, colorless.				
	Phase diagram in regard to <i>p</i> : Fig. 32A-2-001.				
	Effect of uniaxial stress on III–II phase transition: see				75Vis
	*) Θ _{III–II} depends on specimen: see				75Vis, 76Oka
2a	Crystal growth: evaporation of aqueous solution.				69Cra
b	Crystal form: Fig. 32A-2-002.				
3a	Unit cell parameters: <i>a</i> = 6.4115(5) Å, <i>b</i> = 9.1706(5) Å, <i>c</i> = 6.3740(5) Å at 24 °C; <i>a</i> = 6.426 Å, <i>b</i> = 9.104 Å, <i>c</i> = 6.466 Å at about 100 °C.				71Kev 79Bis
b	<i>Z</i> = 4 ^{a)} , 4 ^{b)} and 1 ^{b)} for phase III, II and I, respectively.				^{a)} 71Kev ^{b)} 75Vis
	Positional and temperature parameters in phase III and II: Table 32A-2-001, Table 32A-2-002, Table 32A-2-003. Interatomic distances and angles in phase III and II: Table 32A-2-004, Table 32A-2-005, Table 32A-2-006. Crystal structure of phase III and II: Fig. 32A-2-003, Fig. 32A-2-004.				
4	Temperature dependence of unit cell parameters: Table 32A-2-007; Fig. 32A-2-005. Linear thermal expansion coefficients: Fig. 32A-2-006.				
5a	Dielectric constant: Fig. 32A-2-007, Fig. 32A-2-008, Fig. 32A-2-009. Effect of <i>p</i> : Fig. 32A-2-010.				
c	Spontaneous polarization: Fig. 32A-2-011.				
d	Pyroelectric effect: see				74Sal
6a	Transition heat of the III–II transition: Δ <i>Q_m</i> = 3.35(4) · 10 ³ J mol ^{–1} ; Δ <i>Q_m</i> = 2.6 · 10 ³ J mol ^{–1} .				71Bla 79Bis
7a	Piezoelectricity: see				74Sal, 79Bis, 89Yin
8a	Elastic stiffness: Fig. 32A-2-012. Volume compressibility: Fig. 32A-2-013.				
9a	Refractive indices: Table 32A-2-008; see also Infrared absorption spectra: Fig. 32A-2-014;				75Vis

32 KIO₃ family

see also	73Bal, 79Bis, 85Bai 89Sza
Optical reflectance spectrum: see	77Sal
b Electrooptic effect: $r_{43} = 4.9 \cdot 10^{-12} \text{ m V}^{-1}$, $r_{61} = 1.0 \cdot 10^{-12} \text{ m V}^{-1}$, $r_{12}n_1^3 - r_{32}n_3^3 = 59.6 \cdot 10^{-12} \text{ m V}^{-1}$, $r_{22}n_2^3 - r_{32}n_3^3 = 116.8 \cdot 10^{-12} \text{ m V}^{-1}$.	77Mit
e SHG: see	
10a Raman scattering: Table 32A-2-009; Fig. 32A-2-015; see also	73Bal, 79Bis, 85Bai
13a NMR: Fig. 32A-2-016, Fig. 32A-2-017. NQR: Fig. 32A-2-018, Fig. 32A-2-019. Effect of p on NQR: see	82Bai, 92Bar
15 Polarization reversal was ascertained by etching behavior: see	76Oka