

45 Alum (NH₄Fe(SO₄)₂ · 12H₂O) family

45A Pure compounds

No. 45A-1 NH₄Al(SO₄)₂ · 12H₂O, Ammonium aluminum sulfate dodecahydrate (*M* = 453.33; [D: 481.50])

1a	Ferroelectric activity in NH ₄ Al(SO ₄) ₂ · 12H ₂ O was discovered by Sekine et al. in 1988.		88Sek
b	phase	II	I
	state	F	P
	crystal system		cubic
	Θ [°C]	–197 (on heating) ^{a)} –215 (on cooling) ^{a)}	^{a)} 88Sek
	ρ = 1.642 · 10 ³ kg m ^{–3} . Transparent.		88Sek 88Sek
2b	Crystal growth: evaporation or cooling method from aqueous solution.		57Pep
3a	Unit cell parameter: <i>a</i> = 12.240 Å at 15 °C.		57Pep
b	<i>Z</i> = 4 in phase I. Crystal structure: For ND ₄ Al(SO ₄) ₂ · 12D ₂ O: Table 45A-1-001; Fig. 45A-1-001.		
5a	Dielectric constant: Fig. 45A-1-002, Fig. 45A-1-003, Fig. 45A-1-004, Fig. 45A-1-005, Fig. 45A-1-006. κ _[100] = κ _∞ + <i>C</i> /(<i>T</i> – Θ _p), κ _∞ = 5.2, Θ _p = –217 °C, <i>C</i> = 142 K at 330 Hz. Relaxation time: Fig. 45A-1-007.		88Sek
c	Spontaneous polarization: Fig. 45A-1-008.		