

No. 45A-4 NH₄Fe(SO₄)₂ · 12H₂O, Ammonium iron sulfate dodecahydrate

(M = 482.19; [D: 510.36])

1a	Ferroelectric activity in $\text{NH}_4\text{Fe}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ was discovered by Jona et al. in 1957.			57Jon2
b	phase	II ^{a)}	I ^{a)}	^{a)} 57Jon2
	state	F ^{a)}	P ^{a)}	^{b)} 65Wyc
	crystal system		cubic ^{b)}	
	θ [°C]	−185 ^{a)}		
	For the deuterated crystal, $\theta = -185$ °C ^{a)} . $\rho = 1.713 \cdot 10^3 \text{ kg m}^{-3}$ [D: $\rho = 1.812 \cdot 10^3 \text{ kg m}^{-3}$]. Transparent, colorless.			62Jon
2a	Crystal growth: evaporation or cooling method from aqueous solution. Solubility: Table 45A-4-001.			57Jon1
3a	Unit cell parameter: $a = 12.318 \text{ \AA}$ at 25 °C [D: $a = 12.317 \text{ \AA}$ at 22 °C].			65Wyc
b	$Z = 4$ in phase I.			65Wyc
5a	Dielectric constants: Table 45A-4-002; Fig. 45A-4-001.			
b	Nonlinear dielectric properties: Table 45A-4-003.			
c	Spontaneous polarization and coercive field: $P_s = 0.4 \cdot 10^{-2} \text{ C m}^{-2}$ and $E_c = 33 \cdot 10^5 \text{ V m}^{-1}$ at about 2 °C below θ ($f = 60 \text{ Hz}$). [D: $P_s = 0.4 \cdot 10^{-2} \text{ C m}^{-2}$ and $E_c = 30 \cdot 10^5 \text{ V m}^{-1}$ at about 2 °C below θ].			57Jon2
9a	Refractive indices:			
	λ [nm]	486	589	656
	n	1.4929	1.4848	1.4815
d	Optical activity: Table 45A-4-004.			
13c	Mössbauer effect: Fig. 45A-4-002, Fig. 45A-4-003, Fig. 45A-4-004, Fig. 45A-4-005. The Mössbauer absorption spectra are observed for samples irradiated with protons of 1 ... 5 MeV with varying dosage. The Mössbauer spectra of partly magnetized crystals show a broadening and a shift of the hyperfine structure lines, reflecting the paramagnetic spin fluctuations. For the hyperfine-structure spectra, see also			75Kop 73Weg 65Obe