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Dynamics and ferroelectric phase transition of $(C_3N_2H_5)_5Bi_2Br_{11}$ by means of ac calorimetry and ^1H NMR relaxometry.

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A quite uncommon type of heat anomaly has been disclosed by calorimetric experiments in ferroelectric crystal (C3N2H5)5Bi2Br12 close to the paraelectric-ferroelectric transition. Thermal parameters (such as the excess enthalpy (H) and the excess entropy (S)) of the continuous ferroelectric phase transition at *ca*. 155 K have been estimated and discussed. The entropy transition accompanying the ferroelectric phase transition (PT) of the order of 35 J/mol K confirms an ‘order–disorder’ mechanism. The ferroelectric–paraelectric PT has been described by the Landau model using the specific heat data.^{1}H spin–lattice relaxation at 25 MHz has been measured for this crystal in a very broad temperature range 90–420 K, covering two phase transitions (at 155 and 355 K). The relaxation data have been interpreted in terms of different dynamical properties of imidazolium cations put in structurally different environments.

Słowa kluczowe

ferroelectric, Ac calorymetry, 1H NMR, phase transition, Bromobismuthate(III)

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