The structure and phase transition of tris(n-propylammonium) enneachloro-diantimonate (III), $(n\text{-}C_3H_7NH_3)_3Sb_2Cl_9$.

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Streszczenie

The crystal structure of 0953-8984/8/12/010/img8 at 298 K has been determined (monoclinic, space group Cc, a = 19.464(2) Å, b = 17.736(2) Å, c = 8.116(2) Å, 0953-8984/8/12/010/img9, Z = 4). The structure consists of one-dimensional polyanionic 0953-8984/8/12/010/img10 chains extended along the c-axis, and n-propylammonium cations located in elongated cavities formed by polyanions. The cations are connected to chlorine atoms by 0953-8984/8/12/010/img11 hydrogen bonds. Differential scanning calorimetry, the temperature dependence of the lattice parameters and static electric permittivity studies revealed a first-order phase transition at 0953-8984/8/12/010/img12 K of an `order - disorder' type. It is related to the ordering of n-propylammonium cations that occurs on decreasing the temperature. Debye-like dispersion of the electric permittivity between 30 MHz and 900 MHz is observed over a wide temperature range above 0953-8984/8/12/010/img13. The activation energy of the reorientation of the n-propylammonium cations is found to be 0.29 eV.

Adres publiczny

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