



Room-temperature ferroelasticity and unusual sequence of phase transitions in the crystal of $(\text{N}_2\text{H}_5)_3[\text{CdCl}_5]$.

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Streszczenie

On the basis of thermal analysis (DSC, DTA, DTG), single crystal X-ray diffraction experiments, dielectric studies and optical observation, it is found that the $(\text{N}_2\text{H}_5)_3[\text{CdCl}_5]$ crystal exhibits several structural phase transitions. At room temperature, the studied crystal exhibits ferroelastic properties and undergoes phase transition from the monoclinic to the orthorhombic phase on heating above 327 K. Upon subsequent cooling, two structural phase transitions at about 323 and 319 K are observed, where the crystal adopts orthorhombic symmetry. The presented phase transitions are unique due to the fact the first heating run results in different structural changes compared to those observed during cooling and subsequent heating/cooling runs. In the studied crystal, N_2H_5^+ ions and 1D chains built up from $\{\text{CdCl}_5\}^{3-}$ units bridged by Cl atoms occur. The phase transitions observed can be associated with reorientation of cations and partial disorder of cations as well as Cl atoms.

Słowa kluczowe

phase transition, crystal structure, electric permittivity,
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