PECULIARITIES OF THE THERMAL MOTION IN CRYSTALS FORMED BY CETYLTRIMETHYLAMMONIUM BROMIDE MOLECULES

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S u m m a r y

Phase transformations in CTAB polycrystals are investigated with the use of the thermophysical, dielectric, and spectroscopic techniques. A molecular model of these transformations is proposed. According to this model, the free volume in the intercrystalline layer of CTAB polycrystals starts to grow at 10 °C, and Br^- ions bound with the $–N(CH_3)_3$ terminal groups increase their mobility. At 55 °C, topological solitons of the "one-unit constriction with 180° reorientation" type appear. They arise at terminal methyl groups, pass by the molecules, and are reflected from $–N(CH_3)_3$ groups. In this case, CTAB crystals pass to the orthorhombic rotation-crystalline phase. At 92 °C, topological solitons change the orientation of the terminal $–N(CH_3)_3$ groups, which results in the melting of nonpolar aliphatic layers.