Indicators of premelting in 1-decanol and 1-nonanol studied by FTIR spectroscopy

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In this paper, the use of FTIR spectroscopy as a way of studying the premelting behavior of n-nonanol and n-decanol is discussed. The OH and CH stretching vibrations were analyzed, and compared with the results obtained from the CH2 rocking vibrations band (frequently employed in the detection of rotator state and surface premelting), and the previous results of the authors from the nonlinear dielectric effect method. It was determined that the selected regions of IR spectra were sensitive to pretransitional changes. In n-decanol, a wider range of pretransitional changes was observed, consistent with the formation of rotator state followed by surface premelting. It was confirmed by the changes in the CH2 rocking band. In nonanol, no signs of rotator state formation were found, with only surface premelting present.

Słowa kluczowe

Melting, Phase transition, Rotator state, Premelting, Infrared, Solid state

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