

Infrared dispersion of liquid 1-propanol.

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Streszczenie

The spectra of the real and imaginary components of the complex refractive index were determined for liquid *n*-propanol using a new method, which takes into account the dispersion of the refractive index in the visible range and requires integration over the entire absorption range in the near infrared, mid infrared and far infrared spectral regions. From these data the spectra of both components of the complex electric permittivity and complex polarizability of liquid *n*-propanol were determined in broad optical range (25 000–350 cm⁻¹). Related high-frequency dielectric properties of the liquid were determined and discussed. The total molar polarization was also determined. The molar vibrational polarization related to various spectral ranges has been determined. It has been found to be extremely small for overtone bands. The main contribution stems from the deformation modes of the molecule and from the vibrations of the hydrogen-bonded OH group. The total molar vibrational polarization originating from internal vibrational modes in the 12 000–350 cm⁻¹ region amounts to 2.45 cm³ mol⁻¹, contributing ca. 12.2% to the distortion polarization and 3.8% to the total molar polarization.

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