DENSITY AND TEMPERATURE STUDY OF THE RAMAN NON-COINCIDENCE EFFECT IN ALKYL BENZOATES

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The non-coincidence ($\Delta\nu$) of the isotropic and anisotropic peak frequencies of the Raman carbonyl band was studied for a series of alkyl benzoates. Methyl benzoate, ethyl benzoate, propyl benzoate, butyl benzoate, hexyl benzoate and 2-ethylhexyl benzoate were observed over a density range of 0.95 to 1.20 g cm^{-3} at 20 and 40 $^{\circ}C$. The characteristic density dependence of the value of the non-coincidence effect for each alkyl benozate correlates well with the length and branching of the alkyl side chain. In fact, it was possible to interpret the density dependence of $\Delta\nu$ in terms of packing fraction and conformational changes of the alkyl side chain.