

Are the integrated absorption coefficients temperature dependent? FT-NIR study of the first overtone of the OH stretching mode of octanoic acid.

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Streszczenie

The integrated molar absorption coefficients of the first overtone of an OH stretching mode of free octanoic acid were determined through a series of FT-NIR measurements in a CCl₄ solution at different temperatures. A few methods of calculation of the molar absorption coefficient were applied; the results were compared and discussed. It was shown that not all of the methods can be applied for the calculation if the plot of Beer's law does not pass through the origin. The results clearly show that the integrated molar absorption coefficient is strongly temperature dependent; its value increases approximately 0.6 dm³ mol⁻¹ cm⁻¹ per one degree and the use of a constant value of the coefficient through a temperature range may lead to significant errors.

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