

Self-association of *cis*-9-octadecen-1-ol in the pure liquid state and in decane solutions as observed by viscosity, self-diffusion, nuclear magnetic resonance, electron spin resonance and near-infrared spectroscopic measurements.

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The self-association of *cis*-9-octadecen-1-ol in the pure liquid state and in decane solutions has been studied mainly through near-infrared spectroscopic observation over the temperature range 298.—348. 1K. The analysis of the sharp band at 1410 nm (the first overtone band of OH-stretching vibration mode attributed to free OH-monomer and partly to OH- polymer) leads to a conclusion that the apparent degree of association, n , of the polymer of *cis*-9-octadecen-1-ol is 2.37 —3.78 (average 2.95) both in the pure liquid state and in decane solutions; the n value has a tendency to decrease with an increase in temperature. The apparent association constant, K , which is relatively low, also decreases with an increase in temperature. The low K value, which means small portions of polymerized molecules, is most likely responsible for the high self-diffusion and the low viscosity of *cis*-9-octadecen-1-ol, compared with those of *cis*-9-octadecenoic acid, existing almost entirely as cyclic dimers.

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