

## Sound attenuation, shear viscosity, and mutual diffusivity behavior in the nitroethane-cyclohexane critical mixture.

### Autorzy

R. Behrends

I. Iwanowski

Magdalena Kosmowska

Agnieszka Szala

U. Kaatze

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### Streszczenie

The shear viscosity  $\eta$ , mutual diffusion coefficient  $D$ , and ultrasonic attenuation spectra of the nitroethane-cyclohexane mixture of critical composition have been measured at various temperatures near the critical temperature  $T_c$ . The relaxation rate of order parameter fluctuations resulting from a combined evaluation of the  $\eta$  and  $D$  data follows power law behavior with the theoretical exponent and with the large amplitude  $G_0 \propto (T - T_c)^{-2.1}$ . The ultrasonic spectra have been evaluated in terms of a critical contribution and a noncritical background contribution. The amplitude of the former exhibits a temperature dependence, in conformity with a temperature dependence in the adiabatic coupling constant ( $\propto (T - T_c)^{0.64}$  and  $0.1$  at  $T - T_c = 53$  K). If the variation of the critical amplitude with  $T$  is taken into account the experimental attenuation coefficient data display a scaling function which nicely fits to the theoretical prediction from the Bhattacharjee-Ferrell dynamic scaling model. R. A. Ferrell and J. K. Bhattacharjee,

### Adres publiczny

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