

DIFFUSION COEFFICIENT AND BARODIFFUSION  
RATIO OF MESOSCALE FLUIDS IN THEIR  
CRITICAL REGION

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S u m m a r y

The calculation results for the dependences of the diffusion coefficient and the barodiffusion ratio on the pressure and the density in vicinity of the critical point obtained for spatially confined fluid systems are presented. The critical behavior of those kinetic properties in small volumes of fluids has been analyzed in the fluctuation, dynamic crossover, and regular regions. Spatial dispersion effects have been taken into consideration to avoid the zero value of diffusion coefficient and the infinite value of barodiffusion ratio, when approaching the critical state. Numerical estimations that use experimental data have been made, and plots that illustrate our theoretical calculations have been built.