

RESEARCH OF THE SHEAR AND VOLUME  
VISCOSITY COEFFICIENTS IN MULTIATOMIC  
LIQUIDS AND THEIR DEPENDENCES  
ON THE STATE PARAMETERS

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S u m m a r y

The expressions for the shear,  $\eta_S(\omega)$ , and volume,  $\eta_V(\omega)$ , viscosity coefficients in multiatomic liquids have been obtained by solving the kinetic equations for one- and two-particle distribution functions, and their dependences on the thermodynamic state parameters have been analyzed. Numerical calculations of  $\eta_S(\omega)$  and  $\eta_V(\omega)$  are carried out for liquid N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, and CH<sub>4</sub> in wide temperature,  $T$ , and density,  $\rho$ , intervals, at a fixed frequency  $\omega$ , and for specific choices of the intermolecular interaction potential and the radial distribution function. The validity of the law of corresponding states for viscous properties of multiatomic liquids with respect to the reduced  $\rho^*$  and  $T^*$  values is tested. The results of theoretical calculations of the isofrequency viscosity coefficients for the examined liquids are found to be in satisfactory agreement with available experimental data.