

STRUCTURAL-PHENOMENOLOGICAL THEORY
OF STRESSED STATE IN GRADIENT FLOWS
OF DILUTE POLYMER SOLUTIONS
WITH DEFORMABLE CHAIN
MACROMOLECULES

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S u m m a r y

A general rheological equation of dilute solutions of deformable chain macromolecules in low-molecular solvents is obtained. As a hydrodynamic model of macromolecules, we used a necklace of beads connected with Gaussian subchains. The constitutive equations of stressed state in solutions were derived using the structural-phenomenological approach. The obtained results are verified with the help of the rheological simulation of a solution of Zimm chain macromolecules with allowance for the elasticity of molecular chains and the micro-Brownian motion of their constituent atoms.