

Title: Primitive Chain Network Simulations for H-Polymer Melt under High Shear

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Abstract:

Branch point withdrawal (BPW) was proposed as one of the essential relaxation mechanisms for branch polymers under fast flows, and the effect has been established for uniaxial elongational flows. However, no systematic study has been reported for shear flows. In this study, primitive chain network simulations were performed for H polymers under high-shear. It was found that the simulation with BPW reasonably reproduced the experimental data, whereas that without BPW overestimated the steady state viscosity at high shear rates. In the simulations without BPW, shear-induced rotation of the main-chain was suppressed.