

Nonlinear response of viscoelastic fluids under LAOS (large amplitude oscillatory shear) flow

현 규, 안경현*, 이승중
서울대학교 응용화학부
(ahnnet@snu.ac.kr*)

The rheological properties are usually investigated by two classes of flow. One is the linear viscoelastic experiment, the other is a non-linear viscoelastic experiment which can be designed and performed in various ways. The large amplitude oscillatory shear (LAOS) can provide plentiful additional information. Furthermore, it allows both strain amplitude and time scale to be controlled independently, and it is easy to generate because it does not involve any sudden jump in speed or position. In this study, we will investigate various viscoelastic fluid (polymer solution, suspension, polymer blend, and polymer nanocomposite) under LAOS. As the strain amplitude increases, however, the stress curve becomes distorted and some important information may be lost during data processing. Thus, we need to investigate the stress data more precisely and systematically. We have obtained the stress data using high performance ADC (analog digital converting) card, and investigated the nonlinear response using Fourier transformation (FT) rheology.