

Homework 5

Polymer Processing

- 1.)
 - a.) What is the difference between Trouton viscosity $\bar{\eta}$ and shear viscosity η ?
 - b.) How do their strain rate dependencies differ in polymer melts?
 - c.) What does the ratio ($\bar{\eta} / \eta$) correlate with?
 - d.) Describe three types of simple elongational flow. (Include the values of a_1 , a_2 , and a_3 in the rate of strain tensor (equation 6.8-4).
 - e.) In simple elongational flow with a constant strain rate $\dot{\epsilon}$ how does the length of the sample change with time? (equation 6.8-13).

- 2.) Tadmor problem 6.13, pp. 194.
Problem should read "*Determine the dimensions as a function of time that have to be ...*"

- 3.) Tadmor problem 6.7, pp. 193. (use pp. 174)

- 4.) Tadmor problem 7.1, pp. 236.

Homework 5 Answers