

ENGR 240  
Homework #16  
Due: Monday, April 23, 2001

1. A single chain molecule of poly(vinyl chloride) is made up of 2600 repeat units (mers). What is the molecular weight of this molecule?
2. If you had a poly(vinyl chloride) bottle with a mass of 15 grams, composed entirely of chains with 2600 repeat units each, how many individual poly(vinyl chloride) molecules is the plastic bottle composed of?
3. Poly(methyl methacrylate) is an amorphous polymer used to make Plexiglas®. Using the information in Figure 16.3,
  - a) make a plot of the elastic modulus of poly(methyl methacrylate) as a function of temperature.
  - b) how many times bigger (or smaller) is the elastic modulus of poly(methyl methacrylate) at 20 °C than that of aluminum?