



### Exercises

1. Write the structural formulas for the monomers of the following polymers
  - a) Polyethylene
  - b) Polypropylene
  - c) Polymethyl methacrylate
  - d) Polystyrene
  
2. If a particular type of polyethylene has a number-average molecular weight of 250,000 g/mol calculate:
  - a. the degree of polymerization
  - b. the number of chains in 1000 g of the polymerassuming that all of the polymer chains are the same length.  
Data: Atomic mass (g/mol): H = 1, C=12
  
3. Explain the effect of the amount of branching of the polymeric chains on the following properties of polyethylene:
  - a) Strength
  - b) Elongation
  - c) Degree of crystallinity
  
4. Explain how the amount of crystallinity of a thermoplastic polymer affects:
  - a) The tensile strength of the polymer
  - b) The density of the polymer