Chemical Engineering 160/260
Polymer Science and Engineering

Problem Set #3
Due Friday, February 16

1. Sperling, Ch. 4, problem #1

2. Sperling, Ch. 4, problem #2

3. Sperling, Ch. 4, problem #4

4. Toluene (molecular weight = 92, density = 0.87 g/cm^3) boils at 110.6 ^{o}C at 1 atm pressure. Calculate its solubility parameter at 25 ^{o}C. Note that the enthalpy of vaporization may be approximated from the normal boiling point T_b (K) of a solvent from

$$\Delta H(25\ ^oC) = 23.7T_b + 0.020T_b^2 - 2950 \text{ cal/mol}$$