

Chemistry 342
Spring, 2001
Problem Set 6

Due Friday, October 12

Read Chapter 4, pp 97-112.

Do problems 1, 2, 3, 5, 6, 7. In problem 3b, assume a vapor pressure of 130 Torr and use the heat capacities given in Table 2.6. In all problems involving irreversible processes, the trick is to realize that S is a state variable and to look for an appropriate reversible path that leads to the correct final state.

Also answer the following questions:

1. A piece of metal of mass M_1 and temperature T_1 is brought into thermal equilibrium with a second piece of metal of identical composition with mass M_2 and temperature T_2 . Calculate the final temperature and the total entropy change, assuming that the process is (a) irreversible or (b) reversible. Assume a constant heat capacity.
2. Use the Debye heat capacity to calculate the entropy of copper at 25 K.