

Thermodynamics of Materials

3.00 Fall 2002

Problem Set 7

Exercise 7.1

Hot liquid sodium at 400°C flows through a solid Plutonium pipe, also at 400°C . Naturally, one should worry about the amount of Plutonium that can be dissolved in liquid sodium. Assume that the system is at 1 atm pressure and that the sodium is virtually insoluble in solid plutonium; but, plutonium forms an ideal solution with liquid sodium. Find a thermodynamic estimate of the maximum composition of plutonium in the liquid sodium.