1. Diffusion through a membrane

A membrane is to be manfactured to the following specifications. At 700°C the leak rate of hydrogen is not to exceed 10^{-3} mol cm^{-2} h^{-1} when the concentrations of hydrogen are maintained at 1.5×10^{19} atoms cm^{-3} on one side of the membrane and effectively zero on the other side. What is the minimum thickness of iron foil that will meet these requirements? The diffusion coefficient of atomic hydrogen in iron at 700°C is 3.091×10^{-4} cm^2 s^{-1}.

2. Steady-state diffusion

Shackelford, Introduction to Materials Science for Engineers, Chapter 5, Problem 25

3. Steady-state diffusion

Shackelford, Introduction to Materials Science for Engineers, Chapter 5, Problem 26

4. Steady-state diffusion

Shackelford, Introduction to Materials Science for Engineers, Chapter 5, Problem 27

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