

Thermal Evaporation

Pre-Lab Questions

1. Using information on the vapor pressure curves, justify the use of tungsten (W) or magnesium oxide (MgO) as material for crucibles for aluminum, copper and gold evaporations.
2. How does the pressure in the vacuum chamber affect the metal evaporation rate? Justify your answer.
3. What is the mean free path of metal vapors at the following pressures: 1 bar, 100 mtorr, 4×10^{-6} torr?
4. Make a chart comparing advantages and disadvantages between diffusion pump, cryo-pump and turbo-molecular pump.
5. Briefly explain the function and the principle of operation of a cold cathode gauge.