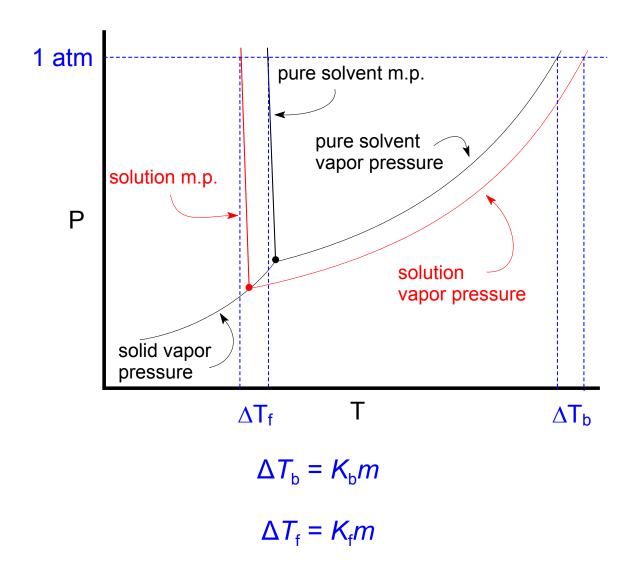
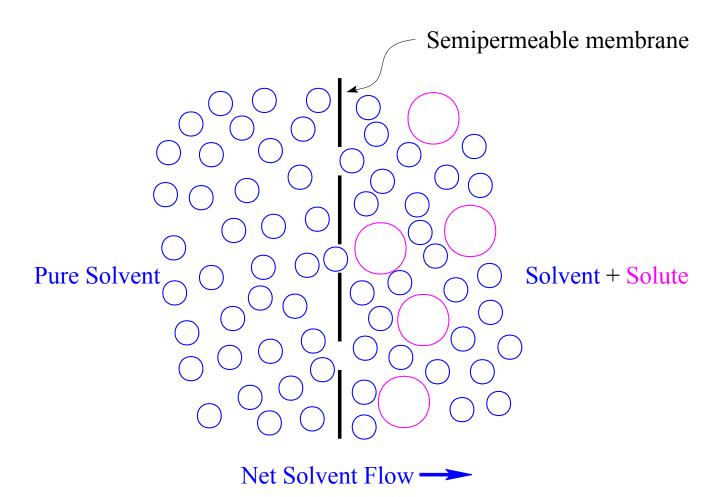
Freezing Point Depression and Boiling Point Elevation



Model of Osmotic Flow



Osmotic Pressure

Jacobus van't Hoff - 1887

Osmotic pressure, π , is the minimum applied pressure that must be applied to the solution side to stop the diffusion of solvent across a semi-permeable membrane into the solution, given by

$$\pi V = nRT$$

where n = moles of solute in V liters of solution

T = temperature in Kelvin

 $R = 0.0821 \text{ L} \cdot \text{atm/K} \cdot \text{mol}$

But molarity is moles/liter,

molarity =
$$M = n/V$$

SO

$$\pi = MRT$$