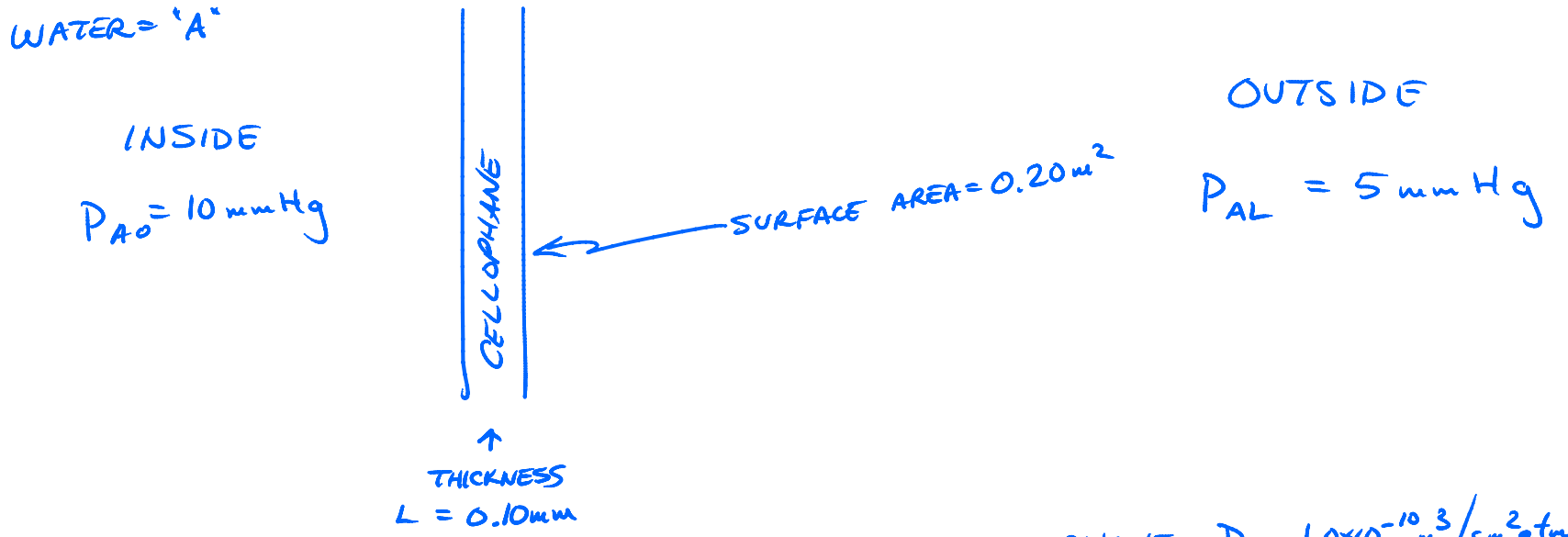

FROM LECTURE:

FOR CELLOPHANE $P_{AB} = 1.0 \times 10^{-10}\ m^3/s\ m^2\ atm/m$ @ STP

(AT STP $RT = 22.4\ l/mol$)

$$\Phi_A = \frac{P_{AB}(P_{A0} - P_{AL})}{LRT} =$$

$$\Phi_A = \frac{(1.0\times10^{-10}\ m^3\ water/(5\ mm\ Hg)}{(s\ m^2\ atm/m)(22.4\ l/mol)(0.10\ mm)} \times \frac{1000\ l}{m^3} \times \frac{atm}{760\ mm\ Hg} \times \frac{1000\ mm}{m}$$

$$\Phi_A = \underline{2.94\times10^{-7}\ mol/m^2 s}$$

$$\dot{m}_A = \Phi_A \cdot A = \left(2.94\times10^{-7}\ \frac{mol}{m^2 s}\right)\left(\frac{18.0\ g}{mol}\right)\left(0.20\ m^2\right)\left(\frac{86400\ s}{day}\right)\left(\frac{1000\ mg}{g}\right)$$

$$\underline{\dot{m}_A = 91\ mg/day}$$