

10/14/05

①

CHM 123 - lecture (Friday 10:30am)

- EXAM 2 - Tuesday, October 18th, 7 - 8:15 pm in Lilly 1105.
- Exam will be multiple choice, 20 questions.

Partial pressures

$$P_{\text{Tot}} = P_A + P_B + P_C + \dots$$

$$P_A = \frac{n_A RT}{V}$$

Mole fraction

$$\left. \begin{array}{l} \text{mole fraction of a gas} \\ \text{in a mixture} \end{array} \right\} = X_A = \frac{n_A}{(n_A + n_B + \dots)}$$

$$= \frac{n_A}{n_{\text{tot}}}$$

$$P_A = \frac{n_A RT}{V} \quad \& \quad P_{\text{tot}} = \frac{n_{\text{tot}} RT}{V}$$

$$P_{\text{tot}} = \frac{(n_A + n_B + \dots) RT}{V}$$

$$\frac{RT}{V} = \frac{P_{\text{tot}}}{(n_A + n_B + \dots)}$$

$$P_A = \frac{n_A RT}{V}, \text{ so } \frac{RT}{V} = \frac{P_A}{n_A}$$

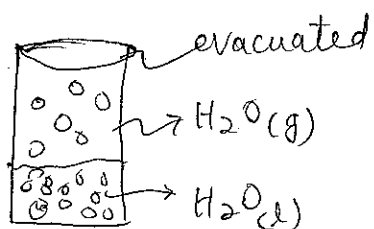
$$\frac{P_A}{n_A} = \frac{P_{\text{tot}}}{n_{\text{tot}}} \Rightarrow P_A = \frac{n_A P_{\text{tot}}}{n_{\text{tot}}}$$

→ mole fraction of A

$$\boxed{P_A = X_A P_{\text{tot}}}$$

partial pressure of A

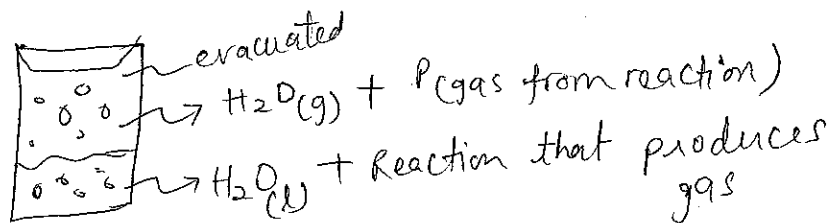
* Mole fraction has no units.

Collecting Gases over H_2O .

@ 25°C

Vapor pressure exerted by $H_2O(g)$
(P_{vap})

$$P = P_{vap}(H_2O) @ 25^\circ C = 0.0313 \text{ atm}$$



$$P_{\text{gas}} = P_{\text{tot}} - P_{\text{vap}} \text{ (vapor pressure of } H_2O(g) @ 25^\circ C \text{)}$$