Reactivity of Metals

NEXT: LABS Physical Separation of a Ternary Mixture

$$\text{Equivalent mass} = \frac{\text{M.M.}}{n}$$ n = moles of e^- transfered

$$\text{Equivalent mass} = \frac{\text{mass of metal reacted}}{2 \times \text{mol } H_2 \text{ formed}}$$

Oxidation: loss of e^-

$$Ca(s) + 2H^+(aq.) \longrightarrow Ca^{2+}(aq.) + H_2(g)$$

$$Ca^\circ(s) \longrightarrow Ca^{2+} + 2e^-$$

Barometric Pressure = Pressure of H_2O column + P. gases

Gas = $H_2(g) + H_2O(g)$

$P_{gases} = P_{H_2} + P_{H_2O}$ = Barometric Pressure (e) − Pressure of H_2O column (i)

(1) $P_{H_2} = P_{gases}$ (#) $- P_{H_2O}$ (T) → Page Table 1

$$P_{H_2O\,column} = \frac{F}{A} = \frac{m \cdot g}{l^2} \cdot \frac{l}{l} = \rho_{H_2O} \cdot g \cdot h_{H_2O}$$

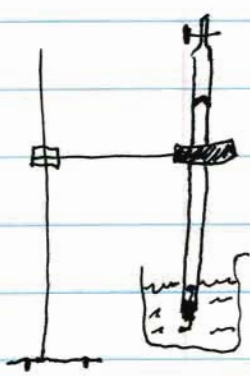
$$\rho_{H_2O} \cdot g \cdot h_{H_2O} = \rho_{Hg} \cdot g \cdot h_{Hg}$$

$$h_{Hg} = \frac{\rho_{H_2O} \cdot h_{H_2O}}{\rho_{Hg}} \qquad \rho_{Hg} = 13.6\ g/mL$$

$P_{H_2O\,column} = h_{Hg}$ ⇝ to get P_{H_2}

(2) V_{gas} = 50 − buret reading + V. dead space

$$P \cdot V = nRT \Rightarrow n_{H_2} = \frac{P_{H_2}^{(1)} \cdot V_{H_2}^{(2)}}{8.21 \times 10^{-2} \frac{atm\,L}{mol\,K} \cdot T_{H_2\,gas}}$$



* Sig. Figs. (0.001g)
* SHOW ALL CALCULATIONS CLEARLY
* SETUP → show how to pour water over acid so no mixing