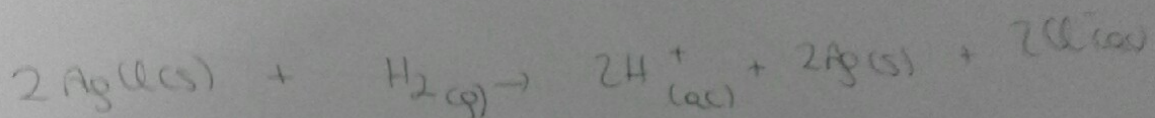


$$E - E^0 \text{ vs } \log [Cl^-]$$

La ec de Nernst de la pila queda ~~así~~
teniendo en cuenta la reacción redox



$$E^0_{pila} = E^0_C - E^0_A = 0.2225 - 0 = \underline{\underline{0.2225 V}}$$

Ec Nernst

$$E = E^0 - \frac{RT}{nF} \cdot 2.3 \log \left(\frac{[H^+]^2 \cdot [Cl^-]^2}{P_{H_2} \rightarrow 1 \text{ atm}} \right)$$

$$n = 2e^-$$

$$E = E^0 - \frac{19.143 \cdot T}{2F} \log [H^+]^2 \cdot [Cl^-]^2$$

$$E - E^0 = \frac{-19.143T}{2F} (2 \log [H^+] + 2 \log [Cl^-])$$

$$E - E^0 = \frac{-19.143T}{F} \log [H^+] - \frac{19.143T}{F} \log [Cl^-]$$

$$E - E^0 = \frac{-19.143T}{F} \log \frac{K_w}{[OH^-]} - \frac{19.143T}{F} \log [Cl^-]$$

$$[OH^-] = 0.01 M$$

$$E - E^0 = \frac{-19.143T}{F} \log \frac{K_w}{0.01} - \frac{19.143T}{F} \log [Cl^-]$$

representando $E - E^0$ vs $\log [Cl^-]$

$$\left. \begin{array}{l} \text{pendiente} \\ \text{calculada} \end{array} \right\} \begin{array}{l} m = -0.059 \\ n = 0.4131 \end{array}$$

$$\begin{aligned} -0.059 \log \frac{K_w}{0.01} &= 0.4131 \\ \log \frac{K_w}{0.01} &= -12.03 \\ K_w &= 9.2 \cdot 10^{-15} \end{aligned}$$

como no se
sabe ni F ni
T pero
tratando de
hacer una
recta para
ajustar los datos
se ve dan

por definición

$$K_w = [OH^-][H^+]$$

$$\Downarrow \\ [H^+] = \frac{K_w}{[OH^-]}$$