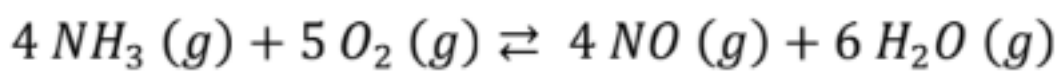


$$\ln \frac{k(T_2)}{k(T_1)} = -\frac{\Delta H^\circ}{R} \cdot \left( \frac{1}{T_2} - \frac{1}{T_1} \right)$$

$$\ln \frac{k(T_2)}{k(T_1)} \approx \overset{\infty}{\left( \frac{1000}{R} \right)} \cdot \left( \frac{1}{T_2} - \overset{\infty}{\frac{1}{T_1}} \right)$$

↗

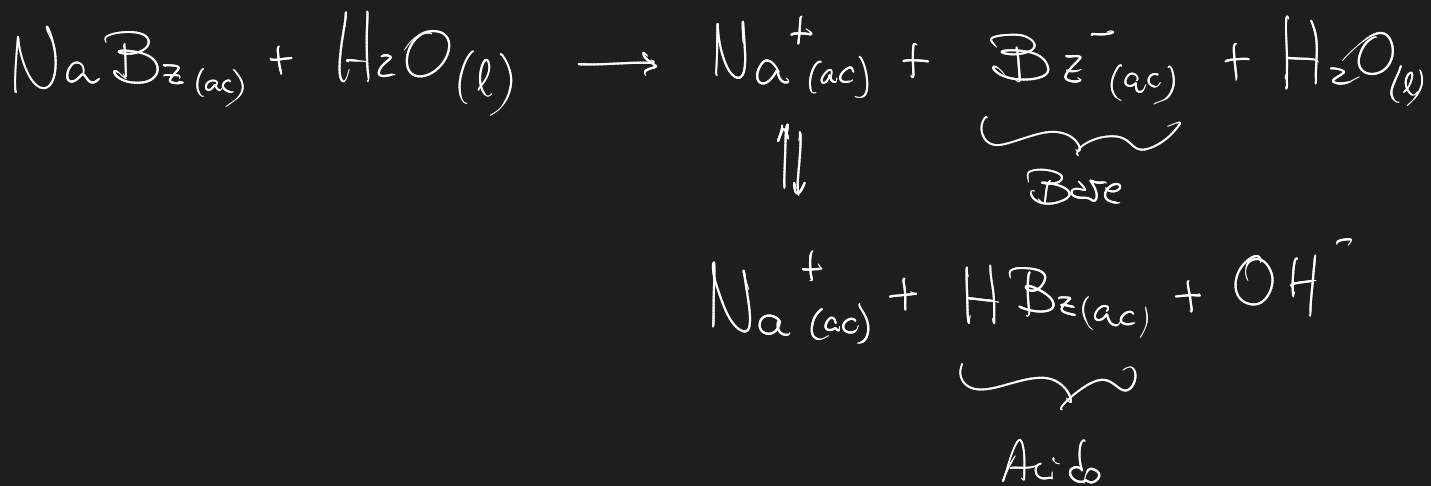
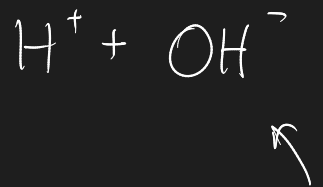


$$Q_p (T) = \frac{P_{\text{NO}}^4 \cdot P_{\text{H}_2\text{O}}^6}{P_{\text{NH}_3}^4 \cdot P_{\text{O}_2}^5} \Rightarrow \frac{2^4 \cdot 2^6}{2^4 \cdot 2^5} = \frac{2^{10}}{2^9} > 1$$

Como  $Q_p > K_p \Rightarrow$  se desloca para **reduzir**  
 $\Rightarrow$  md(NO) **reduce**

$$K_c (T) = \frac{[\text{NO}]^4 \cdot [\text{H}_2\text{O}]^6}{[\text{NH}_3]^4 [\text{O}_2]^5}$$

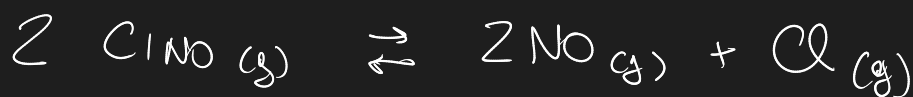
$$pH = -\log [H^+]$$



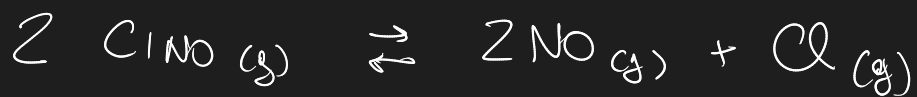
Balance de M<sub>az</sub>

Ácido + Base

$$[NaBz] = 0,03 M = [HBz] + [Bz^-]$$



Quiero  $K_p(T) = \frac{P_{NO}^2 \cdot P_{Cl_2}}{P_{ClNO}^2}$  ← en equilibrio



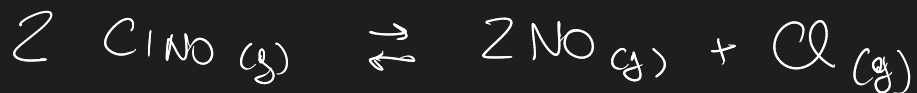
Inicial            0,320 bar                    0                    0

Equilíbrio        0,320 - 2x                    2x                    x

$$P_{\text{Teg}} = P_{\text{ClNO}} + P_{\text{NO}} + P_{\text{Cl}_2}$$

$$0,349 \text{ bar} = 0,320 - \cancel{2x} + \cancel{2x} + x$$

$$0,029 \text{ bar} = x$$



Inicial            0,320 bar                    0                    0

Equilíbrio        0,320 - 2x                    2x                    x

0,262                    0,058                    0,029

$$K_{p(T)} = \frac{P_{\text{NO}}^2 \cdot P_{\text{Cl}_2}}{P_{\text{ClNO}}^2} = \frac{0,058^2 \cdot 0,029}{0,262^2} = 0,4715$$

$$K_{p(T)} = 0,4715$$

$$\ln \left( \frac{K(T_1)}{K(T_2)} \right) = -\frac{\Delta H}{R} \left( \frac{1}{T_1} - \frac{1}{T_2} \right)$$

$$= - \underbrace{\frac{76}{R}}_{<0} \underbrace{\left( \frac{1}{500} - \frac{1}{650} \right)}_{>0}$$

<0

$$\Rightarrow \ln \left( \frac{k(T_1)}{k(T_2)} \right) =$$

$$= \ln k(500) - \ln k(650) < 0$$

$$\Rightarrow \ln k(500) < \ln k(650)$$

$$\Rightarrow k(500) < k(650)$$

∴  $k_p$  crece al aumentar la temp.

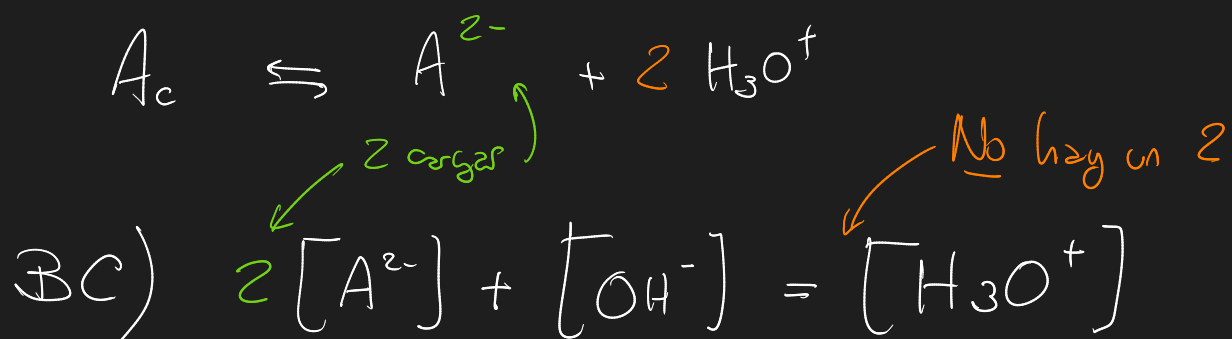
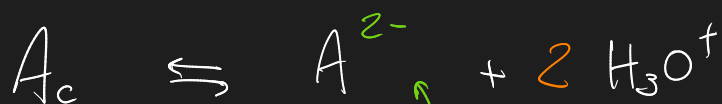
Recordo

$A_c$ : Ácido

Si tengo

$A^{2-}$ : Base Conjugada.

$H^+$ : Lo que me dice el pH



↑  
posiblemente se pueda despreciar.

Ácido fuerte  $\Rightarrow$  se disocia completamente

$[A_c] \approx 0$  y  $[A^{2-}]$  es toda la concentr.  
inicial de  $A_c$ .

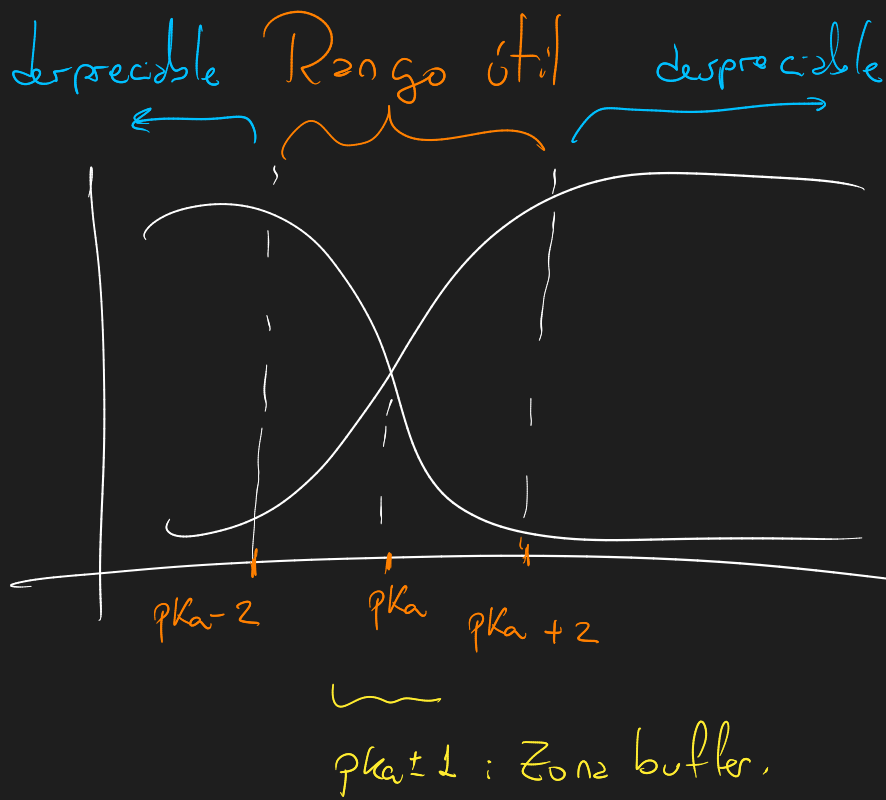
$$C_A = [A^{2-}]$$

Ácido débil  $\Rightarrow$  se disocia parcialmente

$[A_c]$  no es despreciable y

$$C_A = [A_c] + [A^{2-}]$$

↑  
Concentración inicial de  $A_c$



## Redox

$\Delta G < 0$  : Espontánea.

$$\Delta G = -z \cdot F \cdot \Delta E$$

↑  
nro  $e^-$

Para todas las concentraciones son 1:  $\frac{1 \cdot 1}{1 \cdot 1} = 1$

Condiciones Estándar:  $Q = 1$   $\Rightarrow 0$

$\Rightarrow$

$$\Delta E = \Delta E^0 - \frac{RT}{zF} \ln(Q)$$

Suma de Hemi reacciones y suma  $\Delta G$   
(no E!)

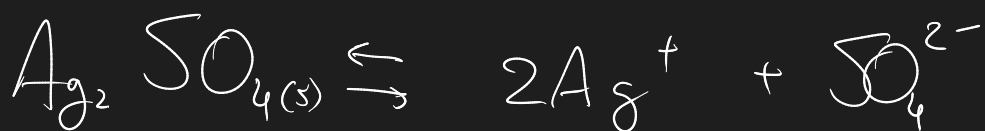
Solubilidad:

$$K_{ps} = [B^+][A^-]$$

$$S = [B^+] = [A^-] \Rightarrow K_{ps} = S^2$$

$$\Rightarrow S = \sqrt{K_{ps}}$$

Concentraciones para ver Q para ver  
si precipita:



$$\Rightarrow [Ag^+]_i = \frac{\overbrace{S \cdot 10^{-4} M}^{\text{dato}} \cdot \overbrace{100 \text{ ml}}^{\text{dato}}}{\text{Volumen total} = 100 \text{ ml} + 1 \text{ ml}}$$

$$[\text{SO}_3^{2-}]_i = \frac{\overbrace{0,001\text{M}}^{\text{dato}} \cdot \overbrace{1\text{ml}}^{\text{dato}}}{\text{Volumen total} = 100\text{ml} + 1\text{ml}}$$

$$\Rightarrow Q_{ps} = \underbrace{[\text{Ag}^+]^2 \cdot [\text{SO}_3^{2-}]}$$

Reemplazo y Comparo

$Q_{ps}$  con  $K_{ps}$