

Correction TD Evolution $\Sigma \varphi X$

I Application directes du cours

Appli 1 : 1) $n = \frac{m}{M} = 6,27 \times 10^{-3} \text{ mol}$

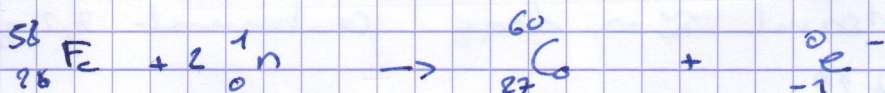
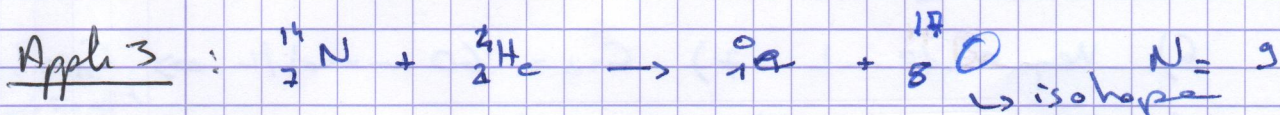
2) $n = CV = 0,4 \text{ mol}$ 3) $C = 6$; $n = 0,025 \text{ mol}$

4) $m = n \times M = 0,305 \text{ g}$

Appli 2 : 1) $C_1 V_1 = C_0 V_0 \Rightarrow C_1 = \frac{C_0 V_0}{V_1} = 2 \times 10^{-3} \text{ mol/L}$

2) $V_3 = 70 \text{ mL}$ $[Co^{2+}] = \frac{C_1 V_1}{V_3}$ $[Fe^{2+}] = \frac{C_2 V_2}{V_3}$

$[SO_4^{2-}] = [Co^{2+}] + [Fe^{2+}]$



Appli 5 1) $K^0 = \frac{P_{O_2}^{1/2} P_{CO_2}^3}{P_{CO}^4}$ à la fin $K^0 = K_1 \cdot K_2^0$

Exercices

Ex 1 1) $n(H_2) = \frac{m}{M} = 0,1 \text{ mol}$ 2) $n_{H_2} = 0,02 \text{ mol}$
 $\xi = n_{O_2} - n_{H_2} = 0,08 \text{ mol}$

3) $n(H_2) = 0,12 \text{ mol}$ 4) $V = \frac{nRT}{P}$

$V = 2,97 \times 10^{-3} \text{ m}^3 = 2,97 \times 10^{-6} \text{ L}$

5) $3\xi = 0,24 \text{ mol}$

6) $\xi_{\max} = 0,1 \text{ mol}$

Ex 2 1) $1 \text{ cm}^3 = 1 \text{ mL} \Rightarrow n_{O_2} = [I_2] V_0 = 4 \times 10^{-4} \text{ mol}$

2) Couleur \Rightarrow reste I_2 , glucose limitant

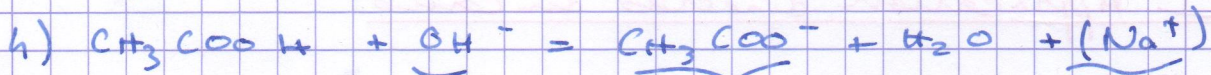
3) $n_R = n_D - n_G$

4) $[I_2]_{\text{restant}} = 150 \times 10^{-6} \text{ mol}$ 5) $n_G = n_D \cdot n_R = 250 \times 10^{-6} \text{ mol}$

6) $n_G' = n_G \frac{V'}{V} = 250 \times 10^{-6} \frac{10^3}{2} = 125 \times 10^{-6} \text{ mol} \Rightarrow m_{nG} = 23,5 \text{ g}$

Ex 3 : 1) tremper la q, négliger la dilution devant dosage modéré dilué.

3) $V_p = 10 \text{ mL}$ pipette \rightarrow fide jauge à 200 mL



5) a) α demi demi avant eq

$$\text{b) } G = h \left([\text{Na}^+] \lambda_{\text{Na}} + \lambda_{\text{CH}_3\text{COO}^-} [\text{CH}_3\text{COO}^-] \right)$$

$$\approx h \left(\lambda_{\text{Na}} + \lambda_{\text{...}} \right) \frac{C_B}{V_0} V \rightarrow \text{pente } 0,028 \text{ S/L}$$

Après équivalence :

$$G = A + h \left(\lambda_{\text{Na}^+} + \lambda_{\text{H}_2\text{O}^-} \right) \frac{C_B}{V_0} V \text{ pente } 0,075 \text{ S/L}$$

\rightarrow 2 eq 2 inconnues (λ_{Na^+} ; h) $\Rightarrow h = 8,98 \text{ m}^{-1}$

$$\lambda_{\text{Na}^+} \approx 5,3 \times 10^{-3} \text{ S m}^2 \text{ mol}^{-1}$$

6) $V_{\text{eq}} = 12 \text{ mL}$ 7) $C_{\text{ad}} = 60 \text{ mmol/L} \Rightarrow C_A = 1,2 \text{ mol.L}^{-1}$

8) $100 \text{ mL} \approx \rightarrow 100 \text{ g}$ contenant $7,2 \text{ g}$ d'acide dérivés

9) $7,2^\circ$

Ex 4

1) $V_{\text{eq}} = 12 \text{ mL}$ 2) $n_A = n_B \Rightarrow C_A = \frac{C_B V_B}{V_A}$

$$3) n_A = n_B \Rightarrow m_A = 3 \times 10^{-2} \times 90 = 2,7 \text{ g} = 3,0 \times 10^{-2} \text{ mol/L}$$

4) $d = 27^\circ \text{D} \rightarrow$ pas fais.