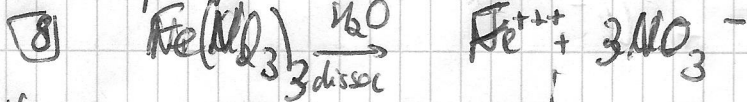
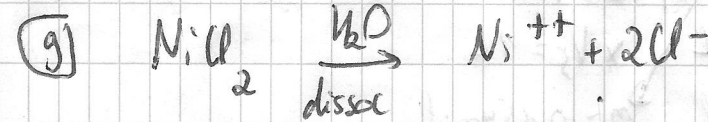


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m_0	C_0	0,3 M	0	0
Δm	ΔC	-1,0,3	+1,0,3	+3,0,3
m_f	C_f	0	$C_{Fe^{3+}} = 0,3 M$	$C_{NO_3^-} = 0,9 M$

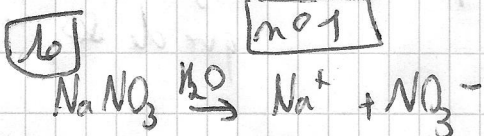
concentration initiale: réactif et pas de produit
 disp des réactifs: \ominus apparition de produits \oplus
 concentration finale: plus de réactif mais de produit



$m = 10g$
 $M_{NiCl_2} = 59 + 2 \cdot 35,5 = 130g/mol$
 $n = 0,077 mol$
 $V_s = 0,4L$
 $C_0 = 0,192 M$

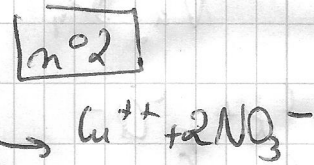
ΔC	-1,0,192	+1,0,192	+2,0,192
C_f	0	$C_{Ni^{2+}} = 0,192 M$	$C_{Cl^-} = 0,384 M$

en V_s
 → prob stochio avec C



$C = 0,003 M$
 $\downarrow x V_s = 902L$
 $n = 6 \cdot 10^{-5} mol$

Δm	-1,6 · 10 ⁻⁵	+1,6 · 10 ⁻⁵	+1,6 · 10 ⁻⁵
n	$n_{Na^+} = 6 \cdot 10^{-5} mol$	$n_{NO_3^-} = 6 \cdot 10^{-5} mol$	
V_s	$V_s = 0,03L$		
C	$C_{Na^+} = 0,002 M$		

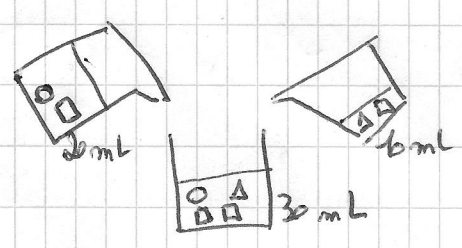


$C = 0,002 M$
 $\downarrow x V_s = 0,01L$
 $n = 2 \cdot 10^{-5} mol$

Δm	-1,2 · 10 ⁻⁵	+1,2 · 10 ⁻⁵	+2,2 · 10 ⁻⁵
n	$n_{Cu^{2+}} = 2 \cdot 10^{-5} mol$	$n_{NO_3^-} = 4 \cdot 10^{-5} mol$	
V_s	$V_s = 0,03L$		
C	$C_{Cu^{2+}} = 6,67 \cdot 10^{-4} M$		

$m_{NO_3^-} = 1 \cdot 10^{-4} mol$
 $\downarrow V_s = 0,03L$
 $C_{NO_3^-} = 3,33 \cdot 10^{-3} M$

ΔV_s change can adjust solution n°2



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$$\rho = 9 \text{ g/L}$$

$$M = 58,5 \text{ g/mol}$$

$$C = 0,154 \text{ M}$$

$$\Delta C = 1,0,154$$

q

$$+ 1,0,154 \quad + 1,0,154$$

$$C = 0,154 \text{ mol} \quad C = 0,154 \text{ M}$$

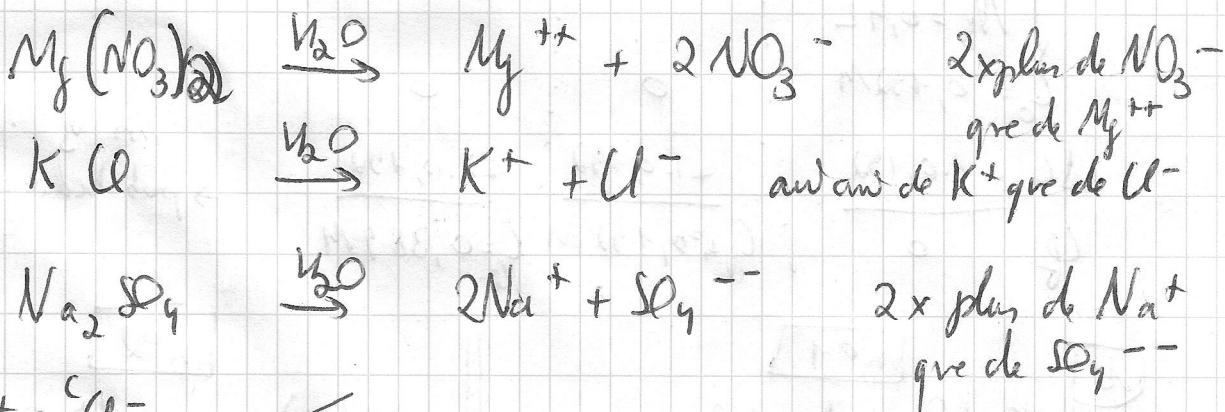
$$\downarrow \times V = 1 \text{ L} \quad \downarrow \times V = 1 \text{ L}$$

$$m = 0,154 \text{ mol} \quad m = 0,154 \text{ mol}$$

$$\downarrow \times M_{\text{Na}^+} = 23 \text{ g/mol} \quad \downarrow \times M_{\text{Cl}^-} = 35,5 \text{ g/mol}$$

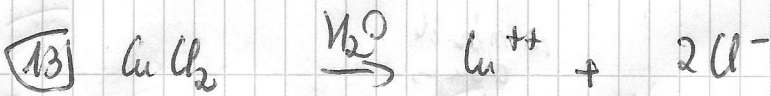
$$m = 3,54 \text{ g} \quad m = 5,47 \text{ g}$$

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- 1) $C_{\text{K}^+} \neq C_{\text{Cl}^-}$ —
- 2) $C_{\text{K}^+} = C_{\text{Cl}^-}$ —
- 3) $C_{\text{Mg}^{++}} \neq \frac{1}{2} C_{\text{NO}_3^-}$ —
- 4) $C_{\text{K}^+} \neq C_{\text{Cl}^-}$ —

$$4) \quad \begin{array}{c} C_{\text{K}^+} \\ 40 \end{array} = \begin{array}{c} C_{\text{Cl}^-} \\ 60 \end{array} \quad \left| \quad \begin{array}{c} C_{\text{Mg}^{++}} \\ 30 \end{array} = \frac{1}{2} \begin{array}{c} C_{\text{NO}_3^-} \\ 60 \end{array} \quad \left| \quad \begin{array}{c} C_{\text{Na}^+} \\ 20 \end{array} = 2 \begin{array}{c} C_{\text{SO}_4^{--}} \\ 60 \end{array}$$



$$C = 0,0012 \text{ M}$$

$$\downarrow V_S = 0,045 \text{ L}$$

$$n = 5,4 \cdot 10^{-5} \text{ mol}$$

n_0	0	0	0
$\pm \Delta n$	+1.	+1.	+2.
n_f	0	$5,4 \cdot 10^{-5} \text{ mol}$	$1,08 \cdot 10^{-4} \text{ mol}$

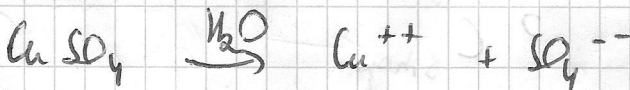


$$C = 0,002 \text{ M}$$

$$\downarrow V_S = 0,07 \text{ L}$$

$$n = 1,4 \cdot 10^{-4} \text{ mol}$$

n_0	0	0	0
$\pm \Delta n$	-1.	+1.	+1.
n_f	0	$1,4 \cdot 10^{-4}$	$1,4 \cdot 10^{-4}$



$$C = 0,0045 \text{ M}$$

$$\downarrow V_S = 0,035 \text{ L}$$

$$n = 1,575 \cdot 10^{-4} \text{ mol}$$

n_0	0	0	0
$\pm \Delta n$	-1.	+1.	+1.
n_f	0	$1,575 \cdot 10^{-4}$	$1,575 \cdot 10^{-4}$

$$n_{\text{Cu}^{++}} = 5,4 \cdot 10^{-5} + 1,575 \cdot 10^{-4} = 2,115 \cdot 10^{-4} \text{ mol}$$

$$\downarrow V_S = 0,045 + 0,07 + 0,035 = 0,15 \text{ L}$$

$$C_{\text{Cu}^{++}} = 1,41 \cdot 10^{-3} \text{ M}$$

$$n_{\text{Cl}^-} = 1,08 \cdot 10^{-4} + 1,4 \cdot 10^{-4} = 2,48 \cdot 10^{-4} \text{ mol}$$

$$\downarrow V_{\text{Sol}} = 0,15 \text{ L}$$

$$C_{\text{Cl}^-} = 1,65 \cdot 10^{-3} \text{ M}$$

$$n_{\text{K}^+} = 1,4 \cdot 10^{-4} \text{ mol}$$

$$\downarrow V_{\text{Sol}} = 0,15 \text{ L}$$

$$C_{\text{K}^+} = 9,3 \cdot 10^{-4} \text{ M}$$

$$n_{\text{SO}_4^{--}} = 1,575 \cdot 10^{-4} \text{ mol}$$

$$\downarrow V_{\text{Sol}} = 0,15 \text{ L}$$

$$C_{\text{SO}_4^{--}} = 1,05 \cdot 10^{-3} \text{ M}$$

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		$1M$	
	γ	$\xrightarrow{140 \text{ g/mol}}$	C
Ca^{++}	$0,468 \text{ g/L}$	\rightarrow	$0,0117 M$
Mg^{++}	$0,0745 \text{ g/L}$	$\xrightarrow{124 \text{ g/mol}}$	$0,003 M$
Na^+	$0,0094 \text{ g/L}$	$\xrightarrow{123 \text{ g/mol}}$	$0,0004 M$
SO_4^{--}	$1,121 \text{ g/L}$	$\xrightarrow{196 \text{ g/mol}}$	$0,0117 M$
HCO_3^-	$0,372 \text{ g/L}$	$\xrightarrow{161 \text{ g/mol}}$	$0,0061 M$

nombre de charges

x 2

0,0234

x 2

0,006

x 1

0,0004

0,0298 M ⊕

x 2

0,0234

x 1

0,0061

0,0295 M ⊖

± em concentration ⊕ et ⊖

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? C ampoule

$m = 1g$

$\downarrow V_s = 0,01L$

$\gamma = 100g/L$

$\downarrow M_{KCl} = 74,5 \text{ g/mol}$

$C = 1,34 M$

$\downarrow x V_s = 0,01L$

$m = 0,0134 \text{ mol}$

? C sirop

$m = 37,5g$

$\downarrow V_s = 0,25L$

$\gamma = 150g/L$

$\downarrow M_{C_6H_4O_7K} = 234 \text{ g/mol}$

$C = 0,641 M$

$$m = C \cdot V_s \quad V_s = \frac{m}{C}$$

$$\rightarrow V_s = \frac{m}{C} = \frac{0,0134}{0,641} = 0,0209 L$$

20,9 mL de poudre de sirop pour = 1 ampoule.