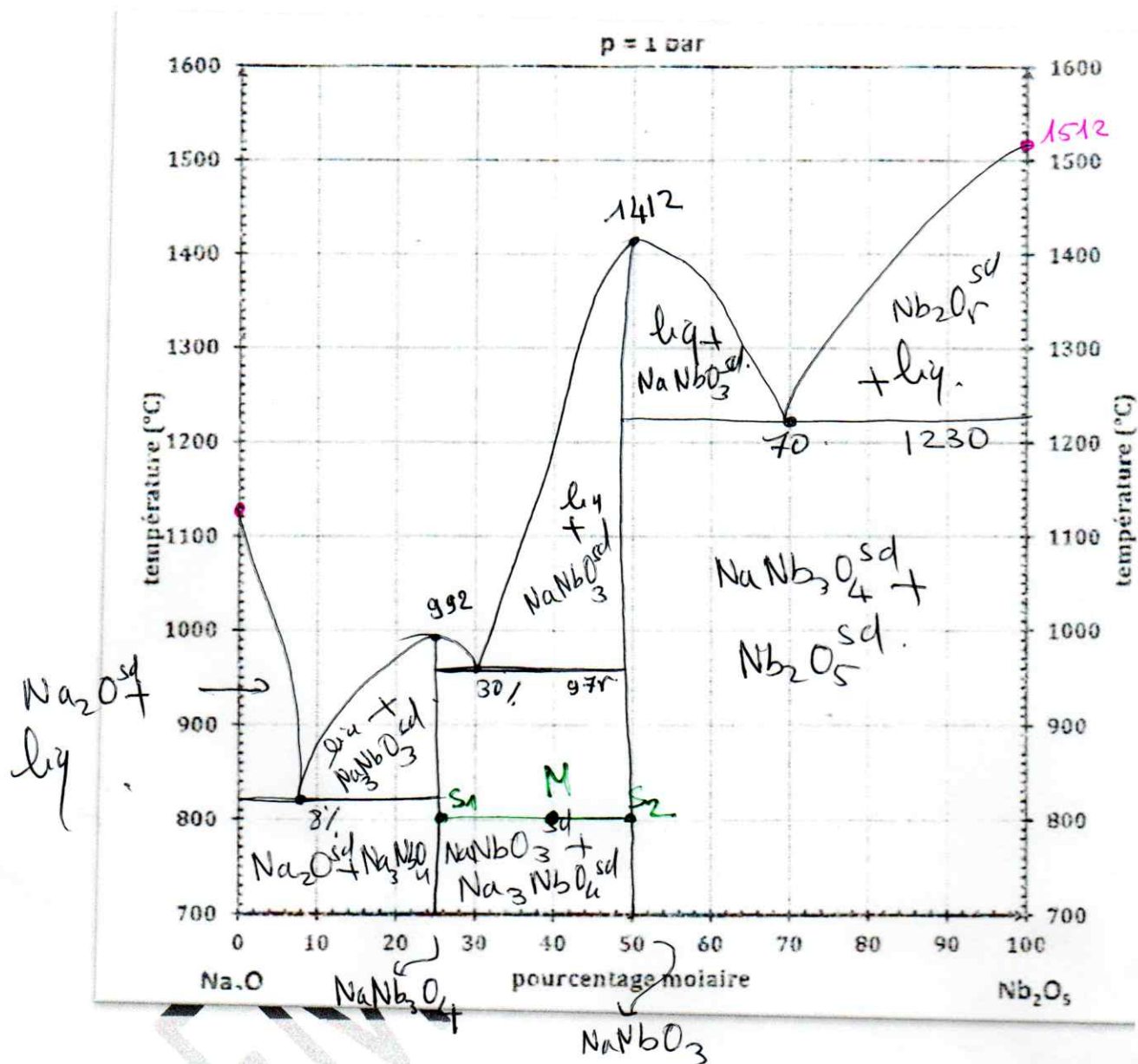
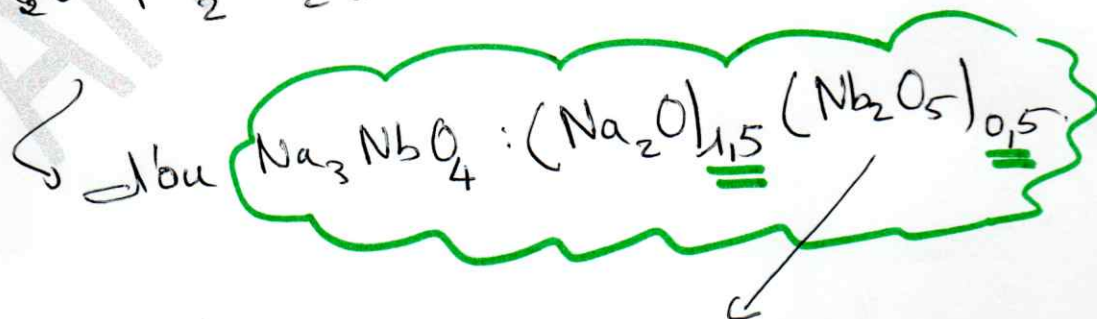
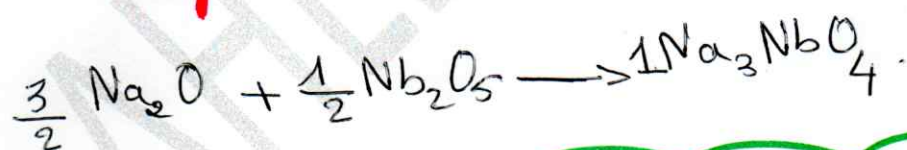


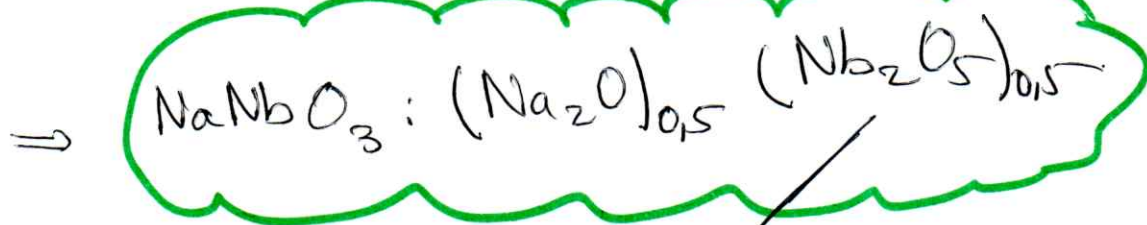
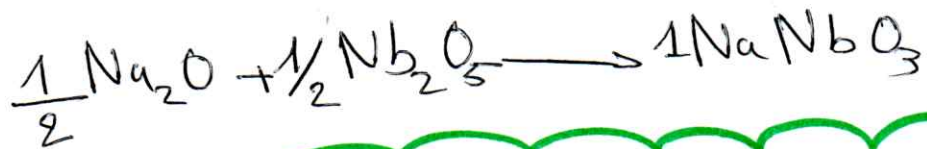
Exercice n°13. P 85



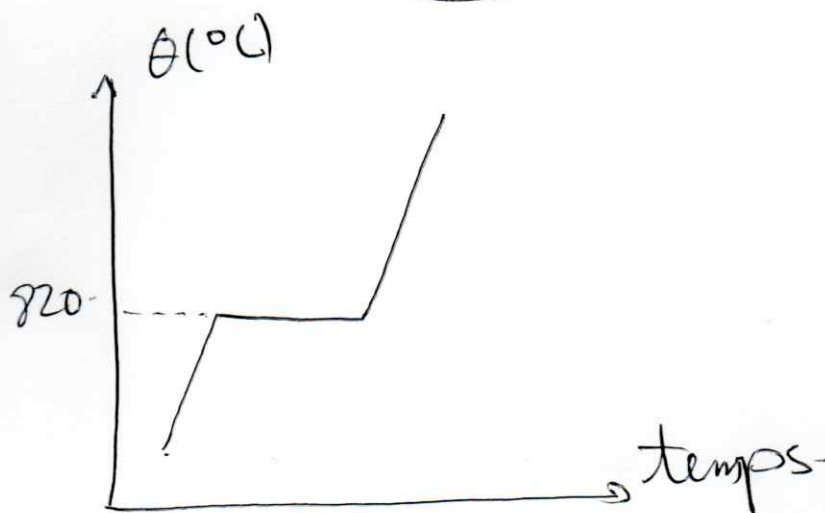
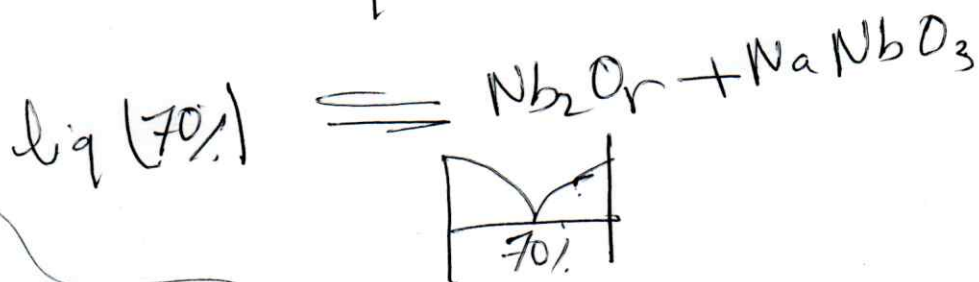
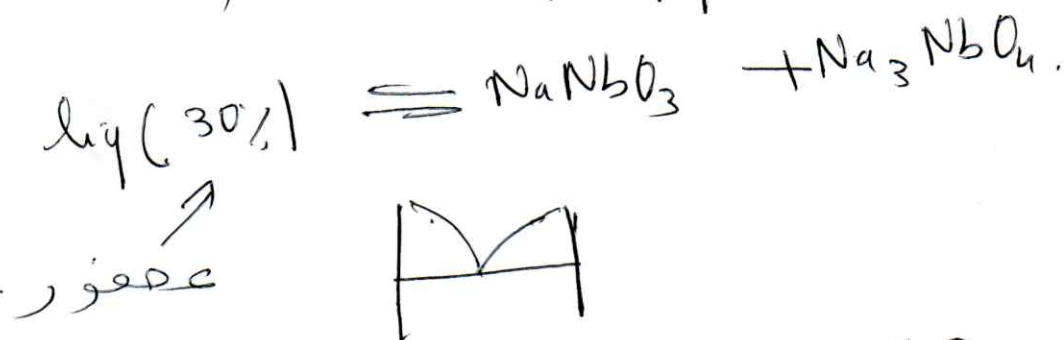
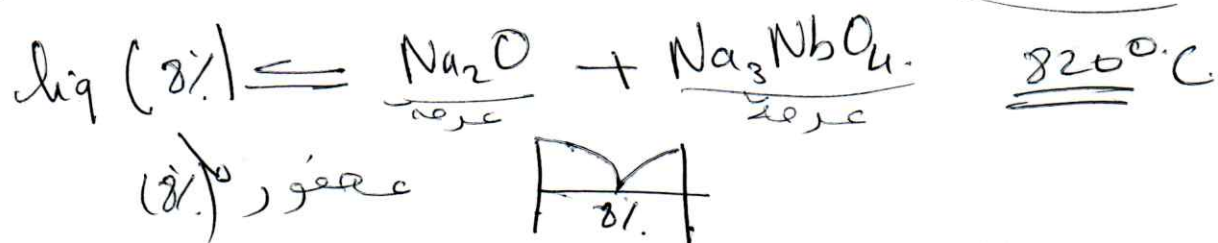
1) composés intermédiaires:



$$X_{\text{Nb}_2\text{O}_5} = \frac{0,5}{2} = 0,25$$



$$X_{\text{Nb}_2\text{O}_5} = \frac{0,5}{0,5 + 0,5} = 0,5$$



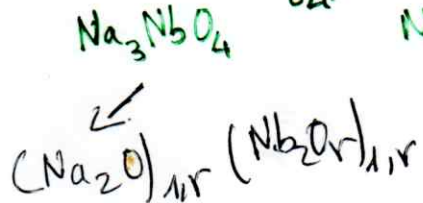
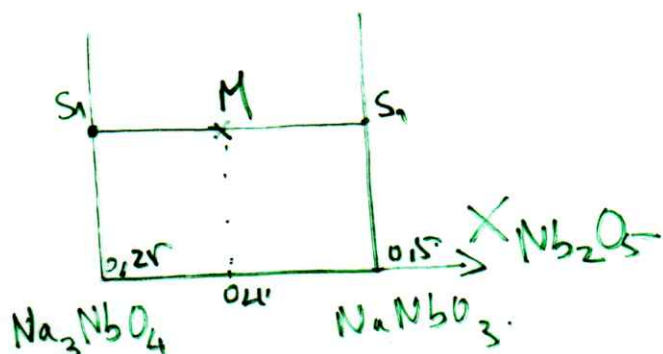
4) on mélange $\Rightarrow$ on calcule $X_{Nb_2O_5}$

$$n_{Nb_2O_5} = 4 \text{ moles}$$

$$n_{Na_2O} = 6 \text{ moles}$$

$$X_{Nb_2O_5} = \frac{4}{10} = 0,4$$

$$n_t = 10 \text{ moles}$$



$$\frac{SM}{MS_2} = \frac{n^{sd_2}}{n^{sd_1}} = \frac{0,1r}{0,1} = 1,5 \Rightarrow n^{sd_2} = 1,5 n^{sd_1}$$

$$n^{sd_1} + n^{sd_2} = 2,5 n^{sd_1} = 10 \text{ mole}$$

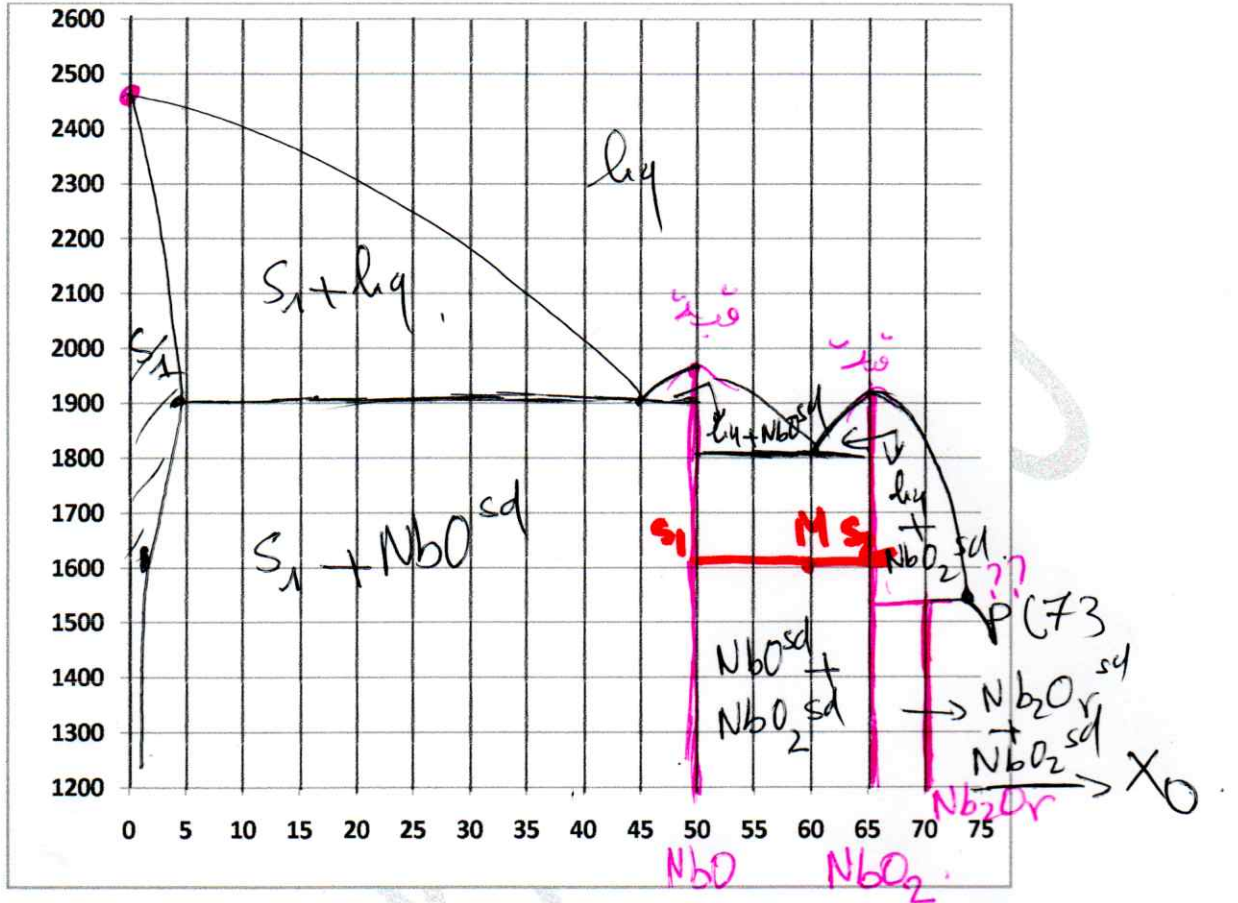
$$\begin{cases} n^{sd_1} = 4 \text{ moles} \\ n^{sd_2} = 6 \text{ mol} \end{cases} \rightarrow \begin{cases} n^{cs_1} = \frac{4}{1,5+0,5} = 2 \text{ mol} \\ n^{cs_2} = \frac{6}{0,5+0,5} = 3 \text{ mol} \end{cases}$$

$$n^{sd} \rightarrow n^{cs} = \frac{n^{sd}}{x+y}$$

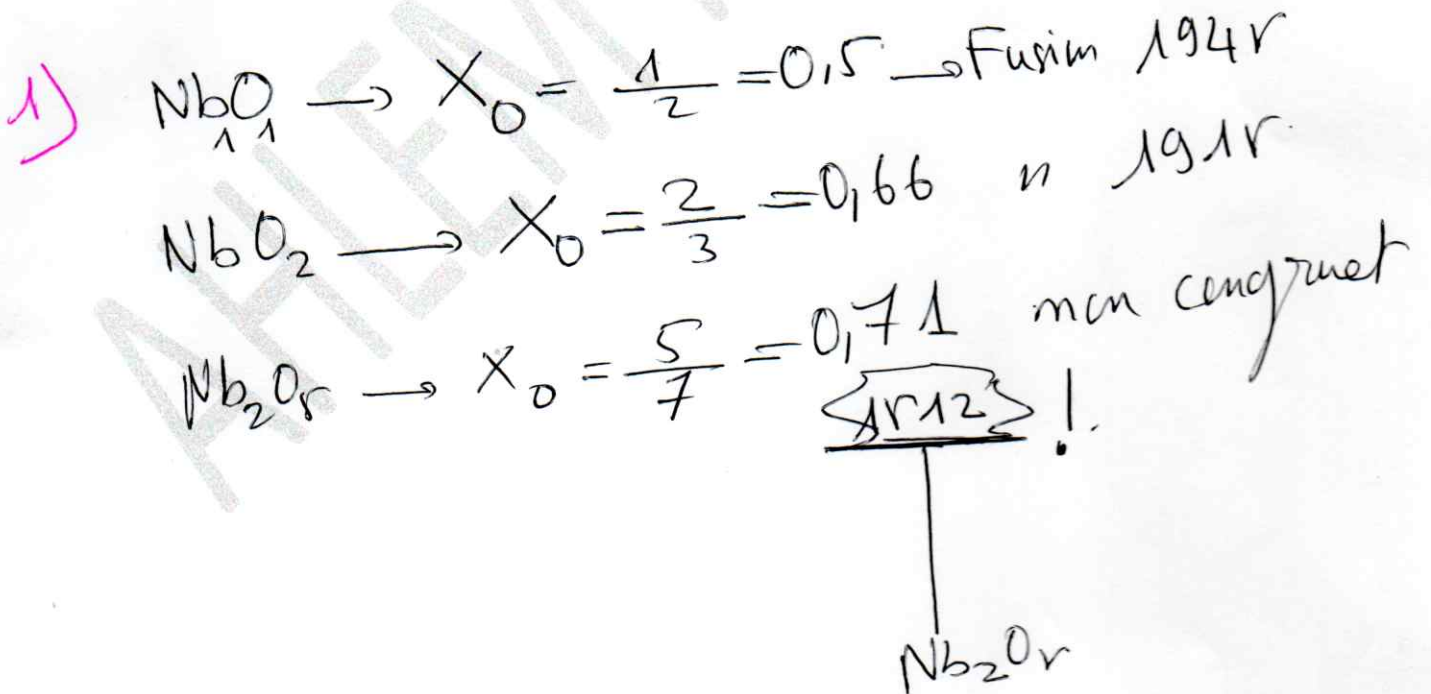
Ex 15 P 88

Température (°C)

à compiler :
NbO → Furim long
1945

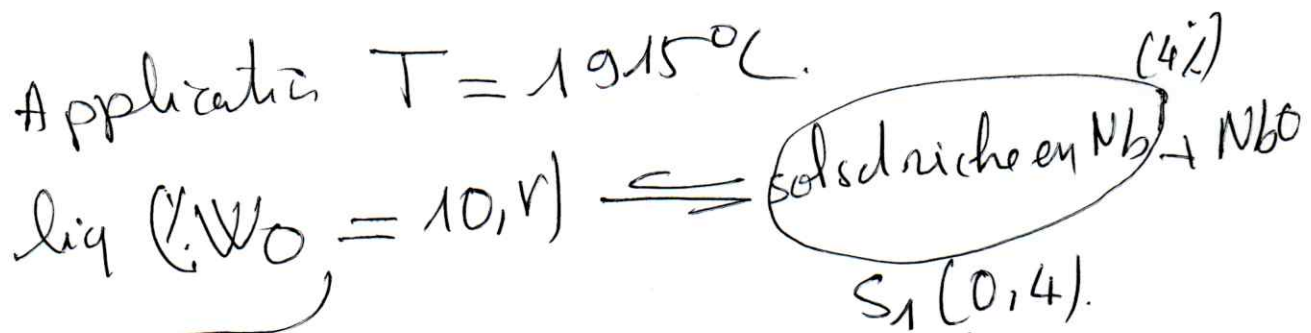


Pourcentage atomique en O : % X_O



$$2) a) X_O = \frac{W_O M_{Nb}}{W_O M_{Nb} + W_{Nb} M_O}$$

b) Application $T = 1915^\circ C$.



$S_1(0,4)$

تركيبه

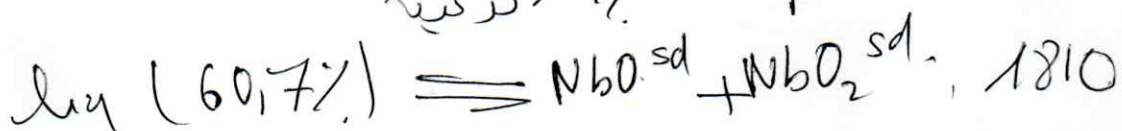
A.N $X_O = \frac{10,1 \times 95}{10,1 \times 95 + (100 - 10,1) \times 16}$

$X_O = 0,4$

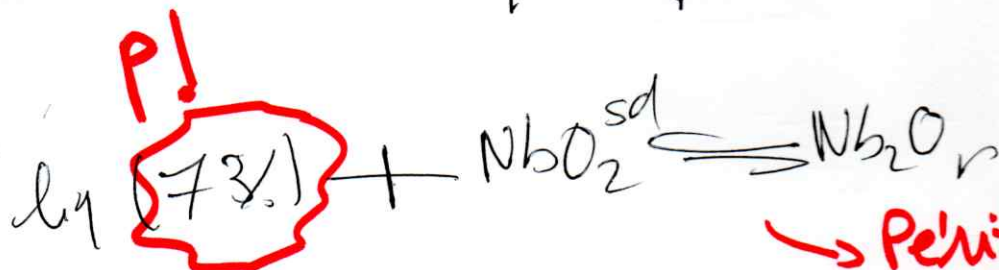


1915

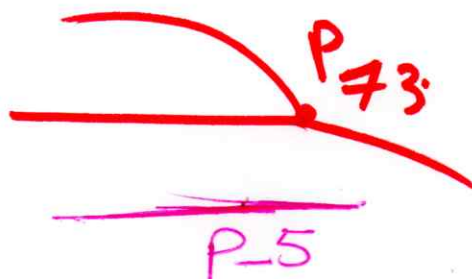
عقور تركيبة 4%



عقور 2



Peritectic.



$$4) m_0 = 2,2 \text{ r mol.} \quad m_{Nb} = 1,5$$

$$\Rightarrow m_t = 3,75 \text{ mol.}$$

$$\Rightarrow X_0 = \frac{2,2r}{3,7r} = 0,6.$$

$$\Rightarrow M(0,6; 1600).$$

Phases obtenues. $NbO^{sd} + NbO_2^{sd}$.

$$\begin{array}{ccc} S_1 & M & S_2 \\ | & | & | \\ 0,5 & 0,6 & 0,66 \end{array}$$

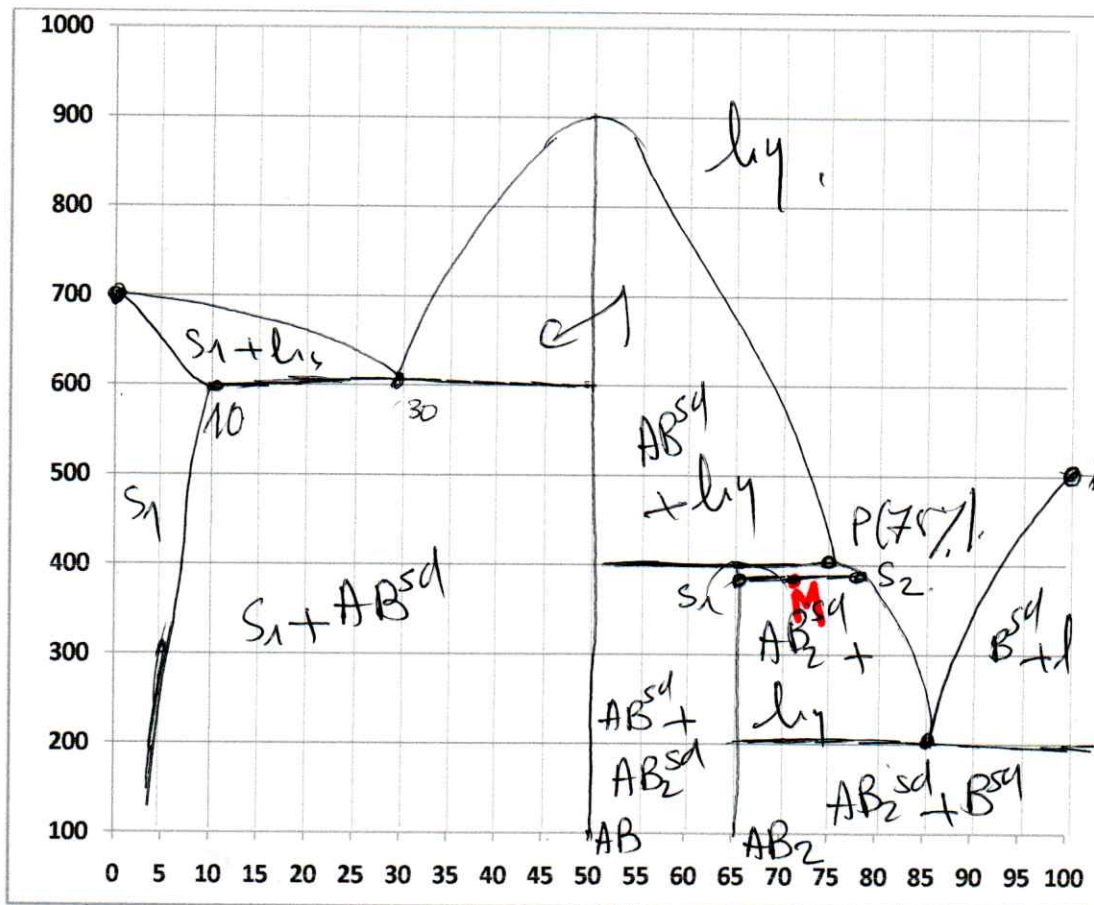
$$\frac{\overline{S_1 M}}{\overline{M S_2}} = \frac{m^{sd_2}}{m^{sd_1}} = \frac{0,1}{0,06} = 1,66.$$

$$\Rightarrow m^{sd_2} = 1,66 m^{sd_1}$$

$$\left\{ \begin{array}{l} m^{sd_1} + m^{sd_2} = 3,75 = 2,66 m^{sd_1} \end{array} \right.$$

$$\Rightarrow \left\{ \begin{array}{l} m^{sd_1} = 1,31 \text{ mol } (Nb_2O_5) \rightarrow m^{Nb_2O_5} = \frac{1,31}{2} = 0,65 \text{ mol.} \\ m^{sd_2} = 2,43 \rightarrow m^{Nb_2O_5} = \frac{2,43}{3} = 0,812 \text{ mol} \end{array} \right.$$

Ex 14

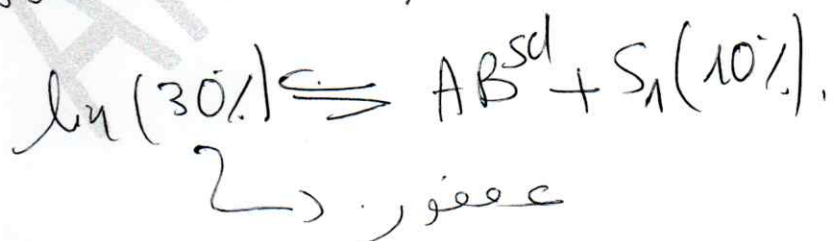


Pourcentage molaire en B

$$AB_{11} \rightarrow X_B = \frac{1}{2} = 0,5 \Rightarrow \text{c\`ab} (900)$$

$$AB_2 \rightarrow X_B = \frac{2}{3} = 0,66 \Rightarrow \text{non congruent } (400)$$

$T = 600^\circ\text{C}$ eutecty.



$T = 400^\circ\text{C} \rightarrow \text{pt Peritecty } P \ 75\%$

$T = 200^\circ\text{C}$
 une phase liq (8r%) en équilibre avec 2 sds (AB_2 et B)
 8r% عسفر

2) $n_t = 10 \text{ moles}$; $X_B = 72,1\%$
 $M(72,1 \text{ ; } 400 - \epsilon)$
 léger et inférieure

$$\frac{S_1 M}{M} = \frac{n^{\text{liq}}}{n^{\text{sd}_1}} = 2,36$$

b) i composition en B

$$X_B^{\text{sd}} = 0,66$$

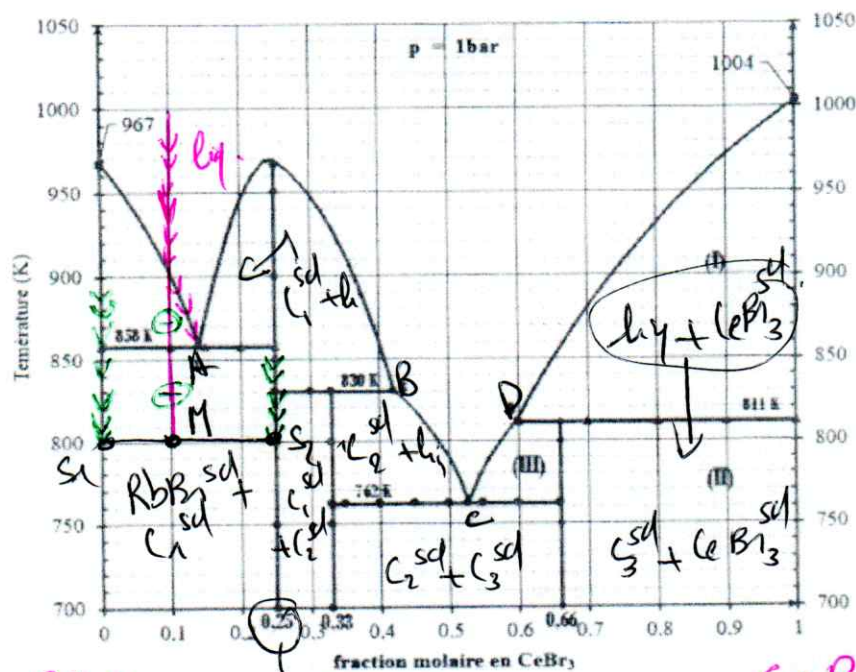
$$X_B^{\text{liq}} = 0,7 !$$

$$\begin{cases} n^{\text{liq}} = 2,36 n^{\text{sd}_1} \\ n^{\text{liq}} + n^{\text{sd}_1} = 10 \text{ moles} = 3,36 n^{\text{sd}_1} \end{cases}$$

$$\begin{cases} n^{\text{sd}_1} = 2,97 \text{ moles} \rightarrow n \\ n^{\text{liq}} = 4,03 \text{ mol} \end{cases}$$

$$A_1 B_2^{\text{sd}} = \frac{2,97}{3} \approx 1 \text{ mol.}$$

Evaluation



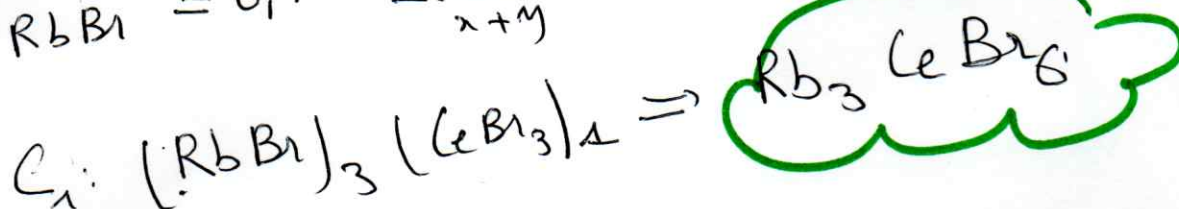
RbBr

CeBr₃



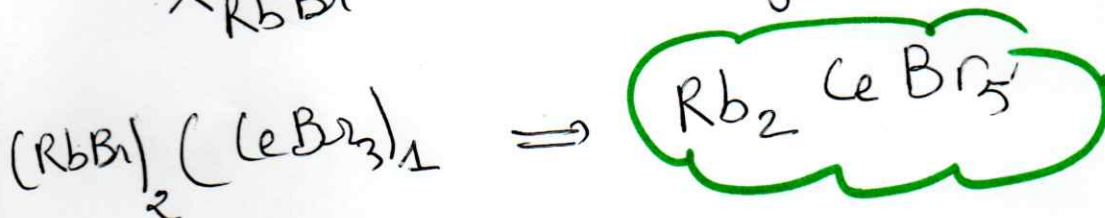
$$* X_{CeBr_3} = 0,25 = \frac{y}{n+y} \Rightarrow \frac{y}{n} = \frac{1}{3}$$

$$X_{RbBr} = 0,75 = \frac{n}{n+y}$$



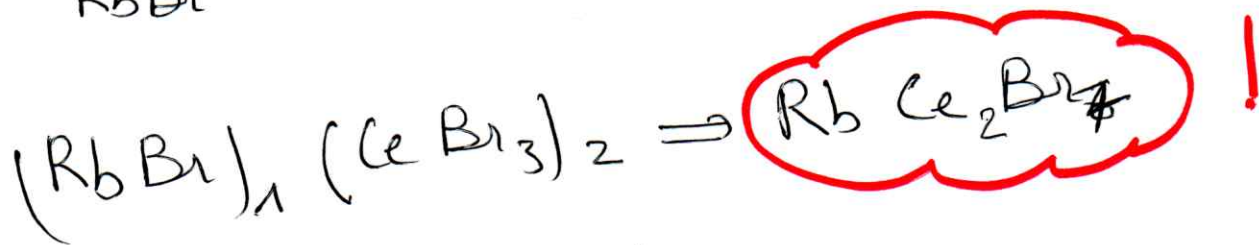
$$* X_{CeBr_3} = 0,33 = \frac{y}{n+y} \rightarrow \frac{y}{n} = \frac{1}{2}$$

$$X_{RbBr} = 0,66 = \frac{n}{n+y}$$



$$* X_{\text{CeBr}_3} = 0,66 = \frac{y}{n+y} \rightarrow \frac{y}{n} \approx \frac{2}{1}$$

$$X_{\text{RbBr}} = 0,33 = \frac{n}{n+y}$$



2) C_1 : Fusion Congruente.
 C_2 " Non Congruente

C_3 " " "

3) I : $\text{liq} + \text{CeBr}_3^{\text{sd}}$

II : $C_3^{\text{sd}} + \text{CeBr}_3^{\text{sd}}$

III : $\text{liq} + C_3^{\text{sd}}$

4) $T = 858\text{K}$ eutectique.
 $\text{liq}(A) \rightleftharpoons \text{RbBr}^{\text{sd}} + C_1^{\text{sd}}$

$T = 811\text{K}$: Peritectique!

$\text{liq}(D) + \text{CeBr}_3^{\text{sd}} \rightleftharpoons C_3^{\text{sd}}$

$$5) m_{RbBr} = 7g$$

$$m_{CeBr_3} = 20,2g$$

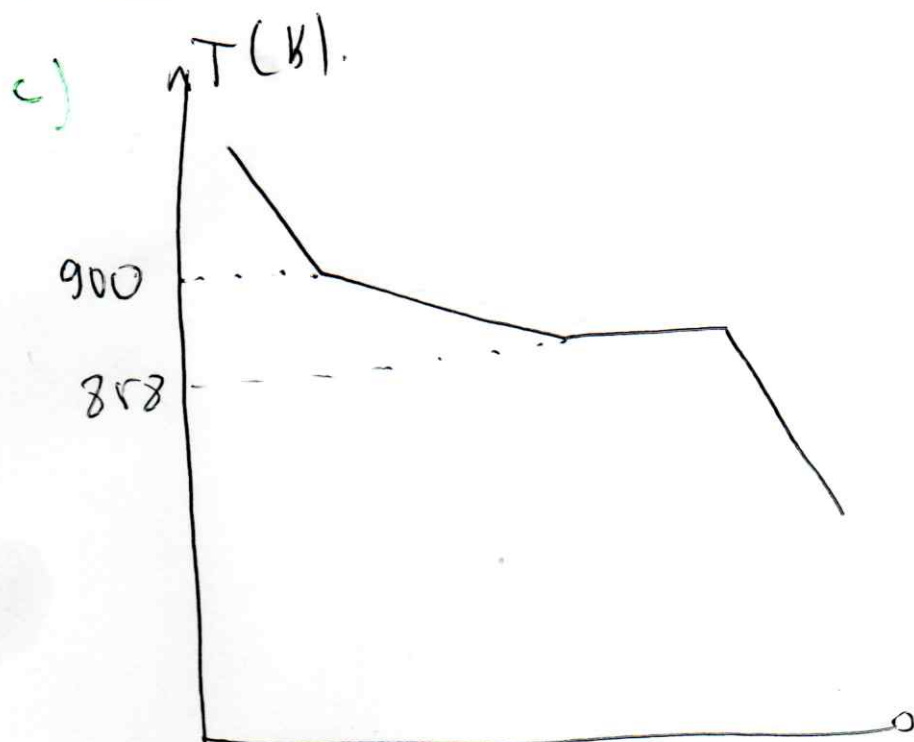
$$a) m_{RbBr} = \frac{7g}{M_{RbBr}} = \frac{7g}{161,47}$$

$$\rightarrow n_t = 0,53 \text{ mol}$$

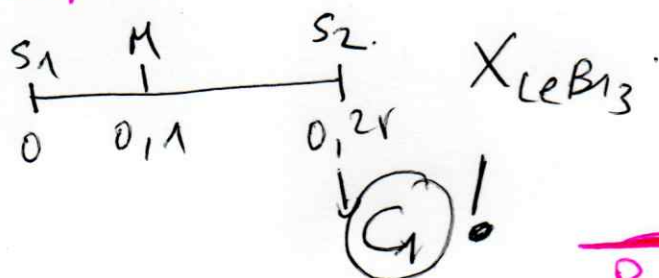
$$n_{CeBr_3} = \frac{20,2}{380,12} =$$

$$X_{CeBr_3} = 0,1$$

$$b) \underline{\text{Ref}} \quad 1000 \rightarrow 800$$



$$\Rightarrow T = 800K \quad M(0,1'; 800)$$



P-11

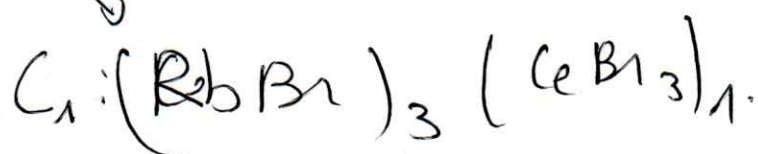
$$\frac{\overline{S_1 M}}{\overline{MS_2}} = \frac{n^{sd_2}}{n^{sd_1}}$$

$$n^{sd_1} + n^{sd_2} = 0,53 \text{ mcl.}$$

$$\left\{ \begin{array}{l} n^{sd_1} = 0,32 \text{ mcl.} = n^{RbBr^{sd}} \end{array} \right.$$

$$\left\{ \begin{array}{l} n^{sd_2} = 0,21 \text{ mcl.} \longrightarrow X^{C_1^{sd}} = \frac{0,24}{3+1} \end{array} \right.$$

$$= 0,06 \text{ mcl.}$$



6) a) il faut chauffer le mélange à une température comprise entre 811 et 930 K ; puis on fait une filtration à chaud.

b) à $T = 811 + \epsilon$.