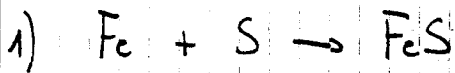


Exercices stoechiométrie

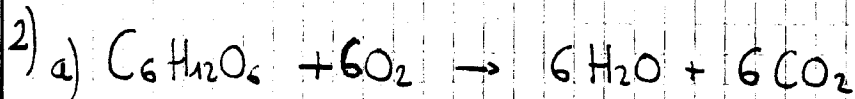


• 56g de Fe $\Rightarrow m = \frac{56}{55,8} = 1,004 \text{ mol Fe}$

• 32g de S $\Rightarrow m = \frac{32}{32,1} = 0,999 \text{ mol S}$

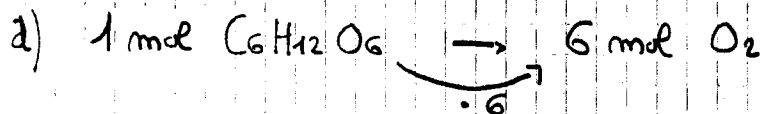
\Rightarrow la totalité de 0,999 mol S réagira pour former 0,999 mol FeS

$m(\text{FeS}) = n(\text{FeS}) \cdot M(\text{FeS}) = 0,999 \cdot 87,9 = \underline{87,8 \text{ g FeS}}$

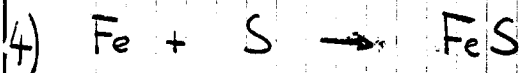


b) $M(\text{C}_6\text{H}_{12}\text{O}_6) = \underline{180 \text{ u}}$

c) $m(\text{C}_6\text{H}_{12}\text{O}_6) = \frac{7}{180} = \underline{0,0389 \text{ mol C}_6\text{H}_{12}\text{O}_6}$



\Rightarrow on a $0,0389 \cdot 6 = \underline{0,2334 \text{ mol O}_2}$

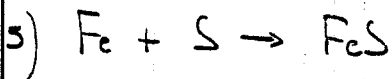


• Fe en excès \Rightarrow on ne s'en occupe pas! (il y en aura assez!)

\Rightarrow c'est S qui détermine le nombre de moles de FeS produit!

5g de S $\Rightarrow m(\text{S}) = \frac{5}{32,1} = 0,156 \text{ mol S}$ produit 0,156 mol FeS

$m(\text{FeS}) = n(\text{FeS}) \cdot M(\text{FeS}) = 0,156 \cdot 87,9 = \underline{13,71 \text{ g FeS}}$



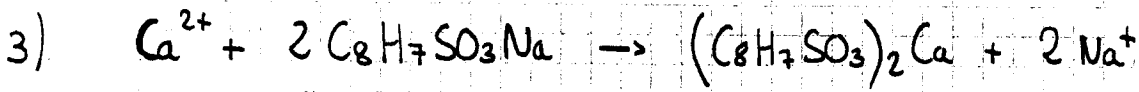
• S est en excès \Rightarrow on ne s'en occupe pas! (il y en aura assez!)

\Rightarrow c'est Fe qui détermine le nombre de moles de FeS produit...

5g de Fe $\Rightarrow m(\text{Fe}) = \frac{5}{55,8} = 0,0896 \text{ mol S}$



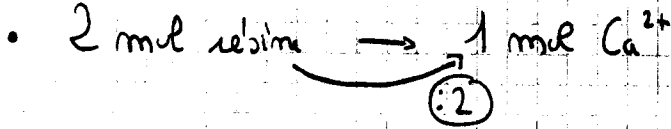
$m(\text{FeS}) = 0,089 \cdot 87,9 = \underline{7,82 \text{ g FeS}}$



Masse 1 mole résine ? $\Rightarrow M(\text{Résine}) = 206,1$

$$m(\text{résine}) = 1 \cdot 206,1 = \underline{206,1 \text{ g pour 1 mole}}$$

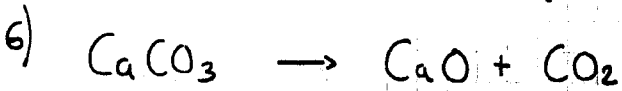
$$1 \text{ g de résine} = ? \text{ mole} \quad m = \frac{1}{206,1} = \underline{0,00485 \text{ mol résine}}$$



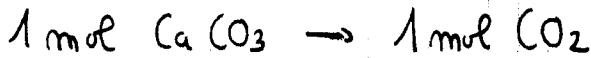
$$0,00485 \text{ mol résine} \rightarrow x \text{ mol Ca}^{2+}$$

$$\Rightarrow x = 0,00485 / 2 = 0,00243 \text{ mol Ca}^{2+} \text{ pour 1 g de résine}$$

$$\Rightarrow \underline{2,43 \cdot 10^{-3} \text{ mol Ca}^{2+} / \text{g résine}}$$

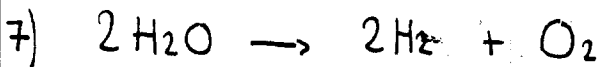


• $100 \text{ g CaCO}_3 : m(\text{CaCO}_3) = \frac{m(\text{CaCO}_3)}{M(\text{CaCO}_3)} \Rightarrow m(\text{CaCO}_3) = \frac{100}{100} = 1 \text{ mol}$

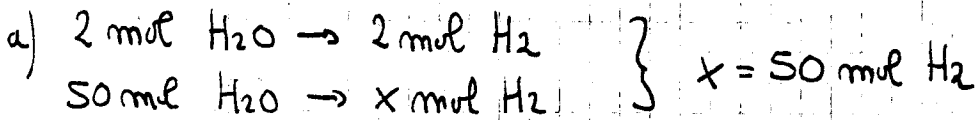


$$\Rightarrow m(\text{CO}_2) = 1 \text{ mol} = m(\text{CaCO}_3)$$

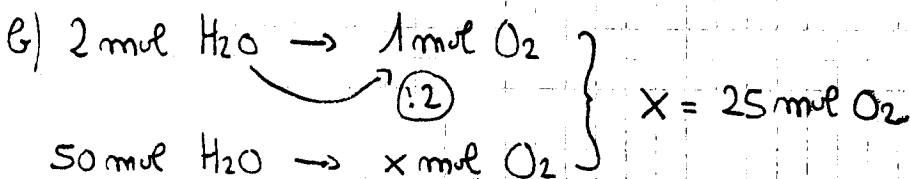
$$\Rightarrow m(\text{CO}_2) = m(\text{CO}_2) \cdot M(\text{CO}_2) \Rightarrow m(\text{CO}_2) = 1 \cdot 44 = \underline{44 \text{ g de CO}_2}$$



• $900 \text{ g H}_2\text{O} = ? \text{ moles} \quad m(\text{H}_2\text{O}) = \frac{900}{18} = 50 \text{ mol H}_2\text{O}$



$$m(\text{H}_2) = m(\text{H}_2) \cdot M(\text{H}_2) = 50 \cdot 2 = \underline{100 \text{ g H}_2}$$



$$m(\text{O}_2) = m(\text{O}_2) \cdot M(\text{O}_2) = 25 \cdot 32 = \underline{800 \text{ g O}_2}$$

Preuve: $900 \text{ g H}_2\text{O} \rightarrow 100 \text{ g H}_2 + 800 \text{ g O}_2 \Rightarrow \text{Lavoisier OK!}$