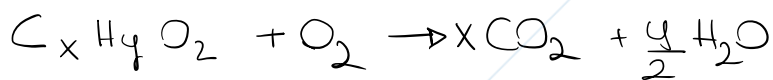


N°1



$$n_{CO_2} = \frac{3,96}{44,0} = 0,09 \text{ mol} \rightarrow \text{moli di C} \rightarrow 1,081 \text{ g}$$

$$n_{H_2O} = \frac{1,62}{18,0} = 0,09 \text{ mol} \rightarrow \text{moli di H} : 0,18 \rightarrow 0,18 \text{ g}$$

$$m_{O_2} = 2,77 - 1,081 - 0,181 = 1,438 \text{ g O}$$

$$n_{O_2} = \frac{1,438}{15,999} = 0,0898 \text{ moli}$$

$$C : 0,09 \text{ mol} / 0,0898 = 1,001 \approx 1$$

$$H : 0,18 \text{ mol} / 0,0898 = 2,003 \approx 2$$

$$O : 0,0898 / 0,0898 = 1$$

formula minima : CH_2O PF = 30 g/mol

$$\Delta T = m \cdot k_{eb} \quad m = \frac{\Delta T}{k_{eb}} = 0,21 / 0,513 = 0,409 \text{ molaletta}$$

$$m = \frac{m_{C_x H_y O_z}}{kg H_2O}$$

$$m_{C_x H_y O_z} = 0,409 \cdot 0,050 \text{ kg} = 0,02045 \text{ mol}$$

$$PM = \frac{3,65}{0,02045} = 178,5 \text{ g/mol}$$

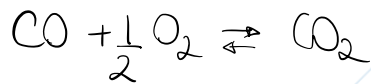
$$\frac{PM}{PF} = \frac{178,5}{30} = 5,95 \approx 6 \rightarrow FM \rightarrow C_6 H_{12} O_6$$

$$\% C = (1,081 / 2,77) \cdot 100 = 40,01\%$$

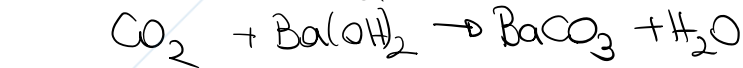
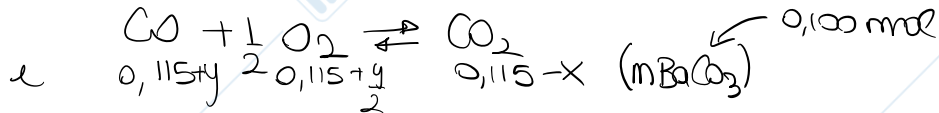
$$\% H = (0,181 / 2,77) \cdot 100 = 6,40\%$$

$$\% O = (1,438 / 2,77) \cdot 100 = 53,26\%$$

N°4



$$n = \frac{p \cdot V}{R \cdot T} = \frac{1 \text{ atm} \cdot 2,5}{0,08206 \cdot 273,15 \text{ K}} = 0,115 \text{ mol}$$



$$m \text{ BaCO}_3 = \frac{19,945 \text{ g}}{197,39 \text{ g/mol}} = 0,100 \text{ mol} = \text{mol di CO}_2$$

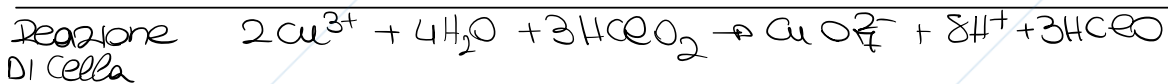
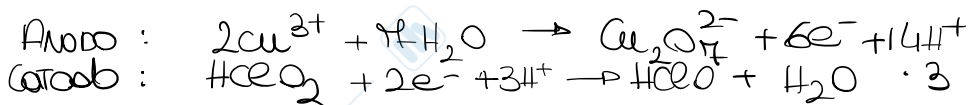
$$0,115 - x = 0,100 \rightarrow x = 0,015 \text{ mol}$$

$$n_{\text{CO}} = 0,115 + 0,015 = 0,130 \text{ mol}$$

$$n_{\text{O}_2} = 0,115 + \frac{1}{2} \cdot 0,015 = 0,1175 \text{ mol}$$

$$K_c = \frac{[\text{CO}_2]}{[\text{CO}] [\text{O}_2]^{1/2}} = \frac{\frac{0,100}{4,50}}{\left(\frac{0,130}{4,50}\right) \left(\frac{0,1175}{4,50}\right)^{1/2}} = \frac{0,0222}{0,0164 \cdot 0,0155^{1/2}} = 6,49$$

N°5



$$E_{\text{cella}} = 1,64 - 1,33 = 0,31 \text{ V}$$

$$E_{\text{cella}} = 0,31 - \frac{0,0592}{6} \cdot \log \frac{\text{PRODOTTI}}{\text{REAGENTI}}$$

$$E_{\text{cella}} = 0,31 - \frac{0,0592}{6} \cdot \log \frac{(0,1) \cdot (10^{-3})^3 \cdot (0,1)^3}{(0,1)^2 \cdot (0,1)^3} = 953 \text{ mV}$$

stesso verso
potenziale > 0

$$K_{\text{eq}} = 10^{\frac{n \cdot E}{0,0592}} = 10^{\frac{6 \cdot 0,31}{0,0592}} = 2,51 \cdot 10^{31}$$