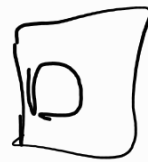


$$PV = nRT \quad n_{\text{SO}_2} = \frac{PV}{RT} = 0.18 \text{ mol}$$

$$n_{\text{CeSO}_3} = n_{\text{SO}_2} = 0.18 \text{ mol}$$

$$m_{\text{CeSO}_3} = 0.18 \cdot PM_{\text{CeSO}_3} \rightarrow 118.14$$

$$= 21.3 \text{ g}$$



$$M_i = 2.0 \text{ M}$$

$$V_i = 200 \text{ mL}$$

$$M_f = 1.5 \text{ M}$$

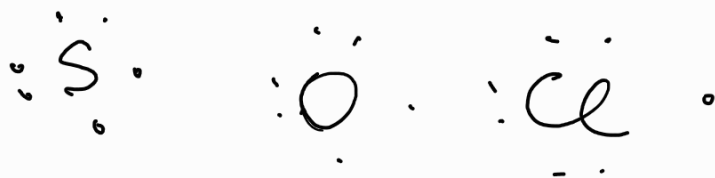
$$V_f = ?$$

$$M_i \cdot V_i = M_f \cdot V_f$$

$$V_f = \frac{M_i V_i}{M_f} = \frac{2. \cdot 200 \cdot 10^{-3}}{1.5}$$
$$= 0.267 \text{ L}$$

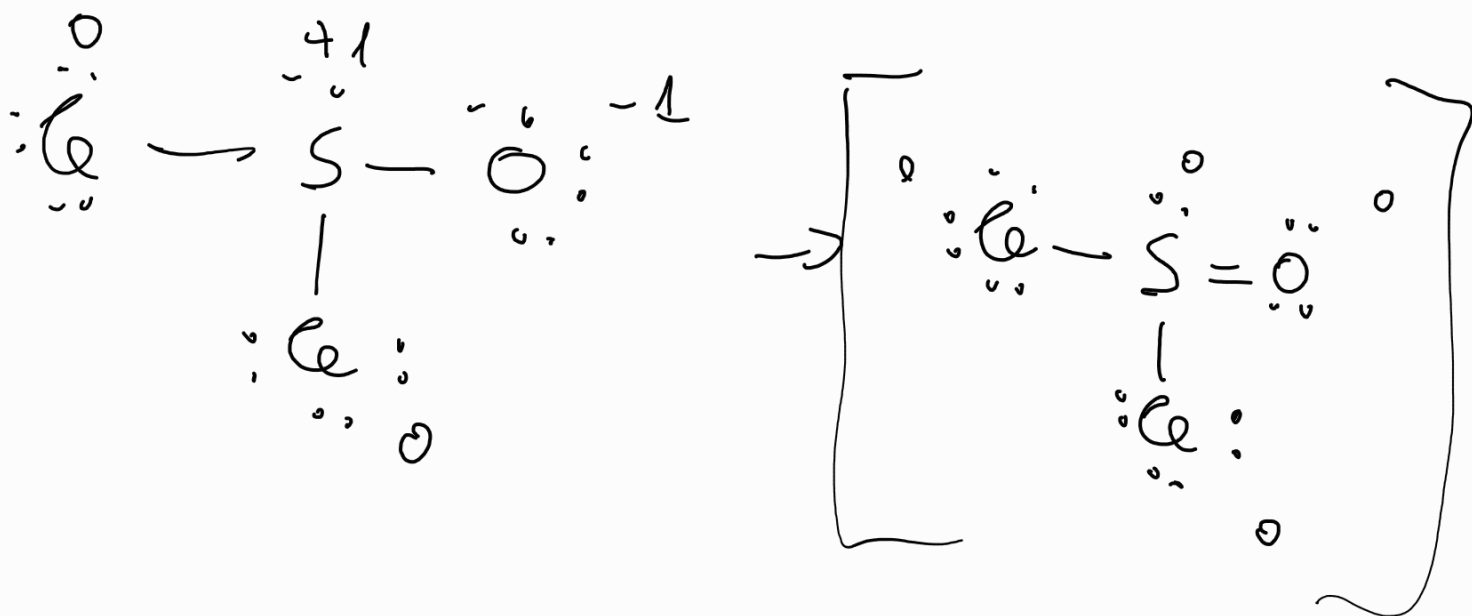
$$V_f - V_i = 267 - 200 = \underline{67 \text{ mL}}$$

A



$$7 \cdot 2 + 6 + 6 = 26$$

13 COPPIE



(B)

GEOMETRIA COPPIE TETRAEDICA

GEOMETRIA MOLECOLARE TRIGONALE
PIRAMIDALE

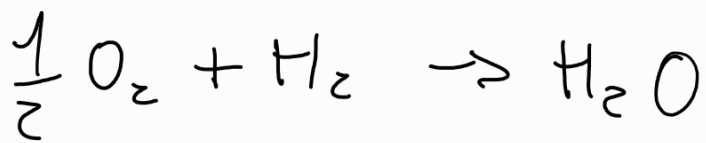
$$E_n = - \frac{R_H}{n^2}$$

$$\begin{aligned} \Delta E &= R_H \left(\frac{1}{n_f^2} - \frac{1}{n_i^2} \right) = R_H \left(1 - \frac{1}{4} \right) \\ &= R_H \left(\frac{3}{4} \right) = 1.635 \cdot 10^{-16} \text{ J} \end{aligned}$$

$$E = h\nu = \frac{hc}{\lambda}$$

$$\begin{aligned} \lambda &= \frac{hc}{E} = 1.22 \cdot 10^{-7} \text{ m} \\ &= 122 \text{ nm} \end{aligned}$$

[C]



STESSE CONDIZIONI STESSO VOLUME $\Rightarrow$
 QUINDI $n_{\text{O}_2} = n_{\text{H}_2}$ MA DI

H_2 NE SERVE IL DOPIO QUINDI
 H_2 È REAGENTE LIMITANTE

$$n_{\text{H}_2} = \frac{PV}{RT} = 0.58 \text{ moli}$$

$$n_{\text{H}_2\text{O}} = n_{\text{H}_2} = 0.58 \text{ moli}$$

$$m_{\text{H}_2\text{O}} = 0.58 \cdot PM_{\text{H}_2\text{O}} = 0.58 \cdot 18$$

$$= 10.4 \text{ g} \quad \boxed{13}$$

POSSIAMO STIMARE LA MASSA DEI
DUE ISOTOPi NOTO IL NUMERO DI
MASSA E QUINDI

$$115 \cdot 0.8991 + 113 \cdot 0.1009$$

$$= 114.8 \quad \boxed{C}$$

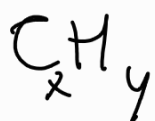
$$M_{H_2} = \frac{0.074}{2} = 0.037 \text{ mol}$$

$$M_{Zn} = M_{H_2} = 0.037 \text{ mol}$$

$$M_{Zn} = 0.037. \quad PM_{Zn} = 2.42 \text{ gr}$$

$$\% Zn = \frac{2.42}{3.86} \cdot 100 = 62.7 \%$$

A



CONSIDERO 100 gr OPPURE:

$$PM_{C_xH_y} = 12 \cdot x + y$$

$$\%C = \frac{12 \cdot x}{12 \cdot x + y} = 0.857$$

$$12 \cdot x = x \cdot 10.284 + y \cdot 0.857$$

$$1.716 \cdot x = y \cdot 0.857$$

$$\frac{1.716}{0.857} = \frac{y}{x} \Rightarrow \frac{y}{x} \approx 2$$

FORMULA MINIMA



$$PV = nRT$$

$$PV = \frac{m_{C_xH_y}}{PM_{C_xH_y}} RT$$

$$PM_{C_xH_y} = \frac{m_{C_xH_y} \cdot R \cdot T}{PV}$$

$$T = 393 \text{ K}$$

$$P = 0.987 \text{ atm}$$

$$V = 1 \text{ L}$$

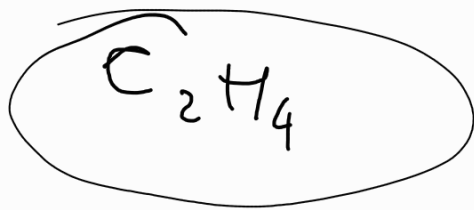
$$m_{C_xH_y} = 0.856 \text{ g}$$

$$PM_{C_xH_y} = 27.98 \text{ gr/mol}$$

PESO MOLECOLARE FORMULA MINIMA CH_2
 $= 12 + 2 = 14 \text{ gr/moli}$

$$\frac{27.98}{14} \approx 2$$

QUINDI FORMULA MOLECOLARE



1A

$$E_{\text{FOTONE}} = E_0 + E_{\text{CINETICA}}$$

$$E_0 = E_{\text{FOTONE}} - E_{\text{CINETICA}}$$

$$= h\nu - E_{\text{CINETICA}}$$

$$= \frac{hc}{\lambda} - E_{\text{CINETICA}}$$

$$= 8.95 \cdot 10^{-19} \text{ J } \boxed{e}$$

$$n_c = n_o = n_{CO(NH_2)_2}$$

$$n_N = 2 \cdot n_c$$

$$n_H = 4 \cdot n_c$$

$$n_{CO(NH_2)_2} = \frac{1.68 \cdot 10^4}{60} = 280 \text{ mol}$$

$$n_c = n_o = 280 \text{ mol}$$

$$n_N = 560 \text{ mol}$$

$$n_H = 1120 \text{ mol}$$

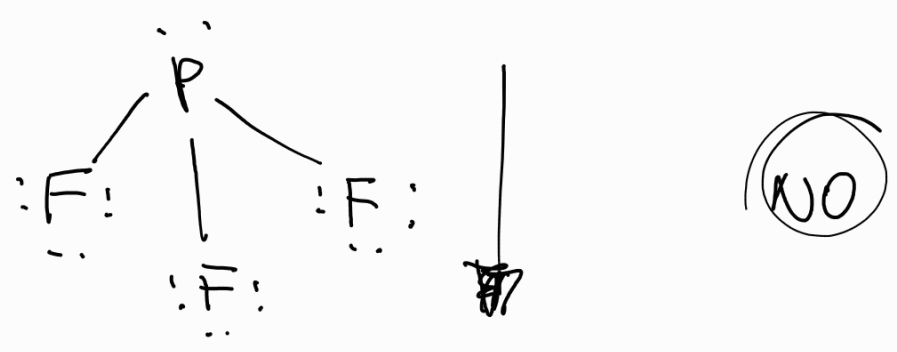
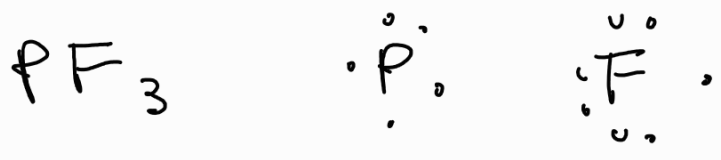


$$\frac{32}{8} = 4$$

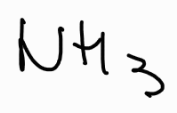
Quindi 4 moli di
NOBr

$$V = \frac{nRT}{P} = 97.9 \text{ L}$$

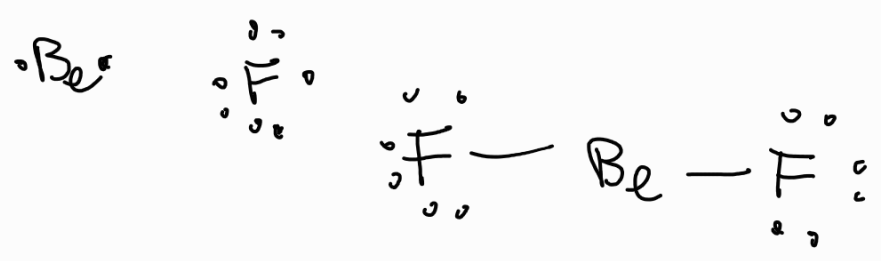
A



(NO)

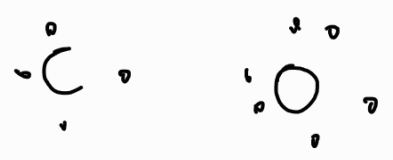


(NO)



NO₄O

(S)



$6 + 4 = 10$ 5 COPIES



(NO)

[C]

$$7.38 \cdot 10^5 \text{ J/mol}$$

$$E_{\text{MOLE FOTONI}} = \frac{N_A \cdot h \cdot c}{\lambda} = E_{\text{ioniz.}}$$

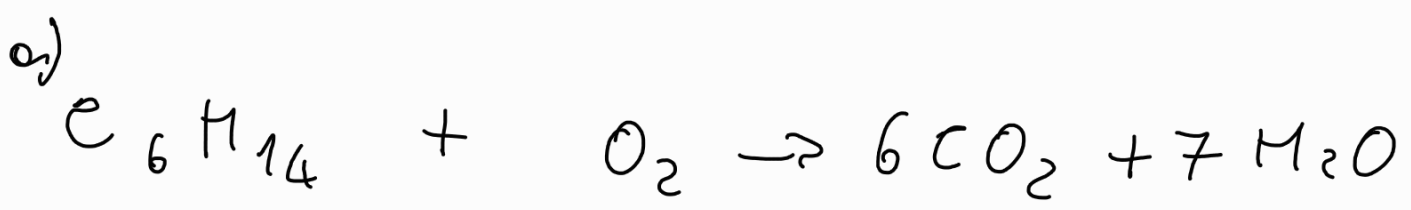
$$\lambda = \frac{N_A \cdot h \cdot c}{E_{\text{ioniz.}}} = 1.62 \cdot 10^7 \text{ nm}$$

↘ $7.38 \cdot 10^5 \text{ J/mol}$

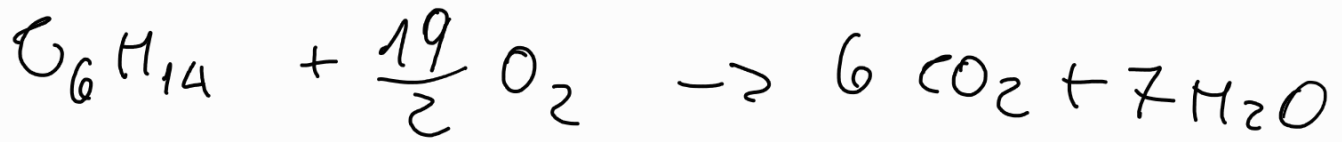
$$\lambda = 162 \text{ nm}$$

✓

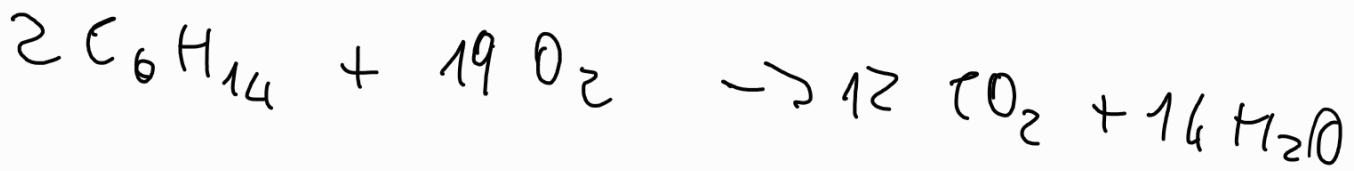




↓



↓



$$b) \quad n_{C_6H_{14}} = \frac{215}{86} = 2.5 \text{ mol}$$

$$n_{O_2} = \frac{215}{32} = 6.7 \text{ mol}$$

$$n_{H_2O} = n_{C_6H_{14}} \cdot \frac{14}{2} = 17.5 \text{ mol}$$

$$n_{H_2O} = n_{O_2} \cdot \frac{14}{19} = 4.9 \text{ mol}$$

O_2 LIMITANTE

$$m_{H_2O} = 4.9 \cdot 18 = 88.2 \text{ g}$$

$$n_{CO_2} = n_{H_2O} \cdot \frac{12}{14} = 4.2 \text{ mol}$$

$$m_{CO_2} = 4.2 \cdot 44 = 186.2 \text{ g}$$

$$c) \quad m_{C_6H_{14}} \text{ REAGITE} = m_{O_2} \cdot \frac{2}{19} = 0.70 \text{ mol}$$

$$\begin{aligned} m_{C_6H_{14}} \text{ NON REAGITE} &= m_{C_6H_{14}} \text{ INIZIALI} \\ &\quad - m_{C_6H_{14}} \text{ REAGITE} \\ &= 2.5 - 0.70 = 1.8 \text{ mol} \end{aligned}$$

$$\underline{m_{C_6H_{14}} \text{ NON REAGITA} = 1.8 \cdot 86 = 155 \text{ g}}$$



a)

$$n_{\text{CH}_4} = \frac{995}{16} = 62.2 \text{ mol}$$

$$n_{\text{H}_2\text{O}} = \frac{2510}{18} = 139.4 \text{ mol}$$

CH_4 E' LIMITANTE

b)

$$n_{\text{H}_2} = n_{\text{CH}_4} \cdot 3 = 186.6 \text{ mol}$$

$$m_{\text{H}_2} = 186.6 \cdot 2 = 373.2 \text{ g}$$

c)

$$n_{\text{H}_2\text{O}} \text{ REAGITE} = n_{\text{CH}_4} = 62.2 \text{ mol}$$

$$\begin{aligned} n_{\text{H}_2\text{O}} \text{ NON REAGITE} &= n_{\text{H}_2\text{O}} \text{ INIZIALE} - n_{\text{H}_2\text{O}} \text{ REAGITE} \\ &= 139.4 - 62.2 = 77.2 \text{ mol} \end{aligned}$$

$$m_{\text{H}_2\text{O}} = 77.2 \cdot 18 = 1389.6 \text{ g}$$