

① $V = 400 \text{ cm}^3$ $V = 50 \text{ cm}^3$
 $P = 1 \text{ atm}$
 $T = 15^\circ\text{C}$ $T = 77^\circ\text{C}$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{400 \times 1}{(273 + 15)} = \frac{50 \times P_2}{(77 + 273)} \Rightarrow P_2 =$$

② $V = 1,2 \times 10^7 \text{ l}$
 $P = 737 \text{ mmHg}$

$$PV = nRT$$

$$PV = \frac{m}{M} RT$$

$$\frac{MPV}{RT} = m$$

$$M_{\text{He}} = \frac{0,9677 \times 1,2 \times 10^7 \times 4}{0,082 \times 298} =$$

$$= 1,5 \times 10^6 \text{ g}$$

M_{He}

0,9677

③ $B_{\text{rel}} = ?$

$$P = 24,8 \text{ mmHg}$$

$$T = 25$$

$$V = 0,125 \text{ l}$$

$$m = 12,5 \text{ mg}$$

$$PV = nRT$$

$$\frac{PV}{RT} = \frac{m}{M}$$

$$M = \frac{mRT}{PV}$$

$$M = \frac{12,5 \times 10^{-3} \times 0,082 \times 298}{0,033 \times 0,125}$$

$$M = 74,92$$

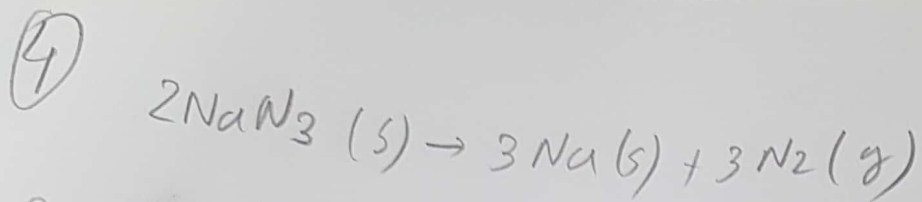
$$B = 10,811$$

$$H = 1$$

$$\frac{74,9}{10,811} \approx 6,9 = 6$$

B_6H_{10}

Schnitt 10



$P = 1,3 \text{ atm}$

$T = 25$

$V = 7,5 \text{ l}$

$PV = nRT$

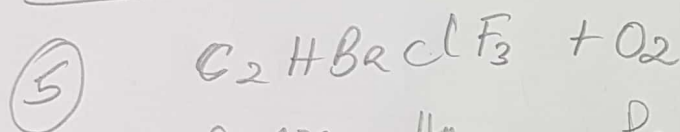
$n_{\text{N}_2} = \frac{1,3 \times 7,5}{0,082 \times 298} = 4$



4

2,67 moles NaN_3

$2,67 \times 65 = 173,6 \text{ g}$



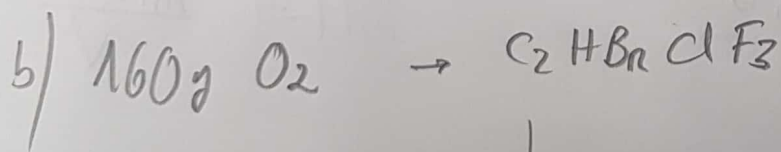
$P = 170 \text{ mmHg}$

$P_{\text{O}_2} = 570 \text{ mmHg}$

$P(\text{hydrocarbon}) = x_{\text{hydrocarbon}} \times P_T = \frac{170}{740} = 0,229$

$P(\text{O}_2) = x_{\text{O}_2} \times P_T = \frac{570}{740} = 0,770$

$P_T = 170 + 570 = 740 \text{ mmHg}$



$n_{\text{O}_2} = \frac{160 \text{ g}}{32 \text{ g/mol}} = 5 \text{ moles}$

$m_{\text{C}_2\text{HBrClF}_3} = 197,38 \times 1,49 = 293,5 \text{ g}$

$x_H = \frac{M_H}{M_H + M_{\text{O}_2}}$

$0,229 = \frac{M_H}{5 + M_H}$

$M_H = 11,49 \text{ g/mol}$

$$\frac{v_{Mn}}{v_{He}} = \sqrt{\frac{M_{He}}{M_{Mn}}}$$

$$\frac{v_{Mn}}{3v_{He}} = \sqrt{\frac{4}{M_{Mn}}} \Rightarrow \left(\frac{1}{3}\right)^2 = \frac{4}{M_{Mn}} \Rightarrow M_{Mn} = 36 \text{ g/mol}$$

9) $S_{xTg} = ?$ 25,23% S

0,097g

V = 85ml

T = 45°C

P = 83,8 mmHg
 " 0,11 atm

$P = nRT$

$M = \frac{nRT}{PV}$

$M = \frac{0,095 \times 0,082 \times (273 + 45)}{0,11 \times 8,9 \times 10^{-2}}$

$M = 254,37 \text{ g/mol}$

nos sobemos que 25,23% do gás é constituido por enxofre.

$0,2523 \times 254,37 = 64,17$

$M_S = 32$

$64,17 / 32 \approx 2$

Logo $S = 2$

$(1 - 0,2523) \times 254,37 = \frac{190,17}{19} \approx 10$

$M_F = 19$

Logo $F = 10$

S₂F₁₀

⑧ $V = 5\text{L}$
 $325\text{g H}_2\text{O}$
 $T = 275^\circ\text{C}$

$$PV = nRT$$

$$P = \frac{nRT}{V - bm} - a \left(\frac{n}{V} \right)^2$$

↓
Volume
↓
interação

$$P = \frac{\frac{325}{18} \times 0,082 \times (275 + 273)}{5 - 0,0305 \times \frac{325}{18}} - 5,46 \left(\frac{325}{18 \times 5} \right)^2$$

$$P = 111 \text{ atm}$$

$$PV = \frac{\frac{325}{18} \times 0,082 \times 578}{5} = 162$$

$$bm = 0,0305 \times \frac{325}{18} = 4,44$$

$$a \left(\frac{n}{V} \right)^2 = 5,46 \times \left(\frac{325}{18} \times \frac{1}{5} \right)^2 = 71,2$$

A contribuição da interação é mais importante.

Nota

os valores de a e b

são tabelados

Têm isso no

Vosso Livro

e nos slides

de aula

9

ClO_2

ClO_2F

$$0,150 \text{ g}$$

$$17,2 \text{ mmHg}$$

$$V = 1850 \text{ ml}$$

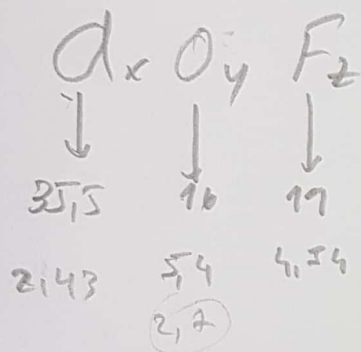
$$T = 21^\circ\text{C}$$

$$PV = \frac{m}{M} RT$$

$$M = \frac{mRT}{PV}$$

$$M = \frac{0,150 \times 0,082 \times 294}{\frac{17,2}{760} \times 1,850}$$

$$M = 86,4 \text{ g/mol}$$

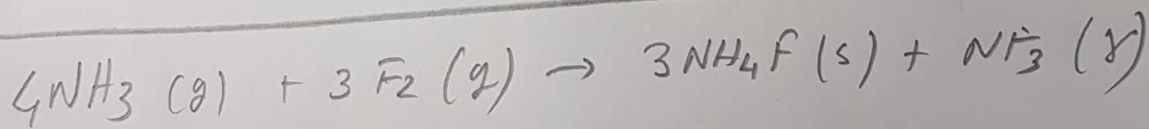


Podnos verification same!

$$86,4 - 3 \times 2 - 3 \times 15 = 18,9 \text{ (19)}$$

ClO_2F

10



$$P(\text{NH}_3 + \text{F}_2) = 120 \text{ mmHg}$$

$$P_{\text{NH}_3} = P_T \cdot x_{\text{NH}_3} = \frac{4}{7} \times 120 = 69 \text{ mmHg}$$

$$P_{\text{F}_2} = P_T \cdot x_{\text{F}_2} = \frac{3}{7} \times 120 = 51,4 \text{ mmHg}$$