

MUSTAQIL ISHLASH UCHUN MASALALAR YECHIMLARI

1-masala yechimi

Bosimning molekulyar formulasi:

$$p = (1/3) n m_0 v_{kv}^2$$

$$p = (1/3) \cdot 2,5 \cdot 10^{25} \cdot 4,8 \cdot 10^{-26} \cdot (500)^2$$

$$(500)^2 = 250000$$

$$p = (1/3) \cdot 2,5 \cdot 4,8 \cdot 10^{-1} \cdot 250000$$

$$p \approx 1,0 \cdot 10^5 \text{ Pa}$$

Javob: $p \approx 100 \text{ kPa}$

2-masala yechimi

Zichlik o'zgarish $\rightarrow p \sim T$

a)

$$p_2 / p_1 = T_2 / T_1 = 1200 / 300 = 4$$

b)

$$v_{kv} \sim \sqrt{T}$$

$$v_2 / v_1 = \sqrt{4} = 2$$

Javob: bosim 4 marta, tezlik 2 marta oshadi.

3-masala yechimi

Bir xil p va T da:

$$\rho \sim M$$

$$\rho_1 / \rho_2 = M_1 / M_2 = 4 / 28 = 1 / 7$$

Javob: $\rho_1 / \rho_2 = 1/7$

4-masala yechimi

Ideal gaz tenglamasi:

$$pV = NkT$$

$$V = 8 L = 8 \cdot 10^{-3} m^3$$

$$p = 1,5 \cdot 10^5 \text{ Pa}$$

$$T = pV / (Nk)$$

$$T = (1,5 \cdot 10^5 \cdot 8 \cdot 10^{-3}) / (3,5 \cdot 10^{23} \cdot 1,38 \cdot 10^{-23})$$

$$T \approx 249 \text{ K}$$

Javob: $T \approx 250 \text{ K}$

5-masala yechimi

Ichki energiya:

$$U = (f/2) nRT$$

$$6,2 \cdot 10^3 = (f/2) \cdot 8,31 \cdot 300$$

$$f \approx 5$$

Xulosa: gaz ikki atomli

6-masala yechimi

a)

$$M_{o'rt} = (1 \cdot 4 + 1 \cdot 44) / 2 = 24 \text{ g/mol} = 0,024 \text{ kg/mol}$$

b)

$$\rho = pM / (RT)$$

$$\rho = (2 \cdot 10^5 \cdot 0,024) / (8,31 \cdot 300)$$

$$\rho \approx 1,93 \text{ kg/m}^3$$

7-masala yechimi

$$\langle E \rangle = (3/2) kT$$

$$T = 2\langle E \rangle / (3k)$$

$$T = (2 \cdot 6,21 \cdot 10^{-21}) / (3 \cdot 1,38 \cdot 10^{-23})$$

$$T \approx 300 \text{ K}$$

8-masala yechimi

$$p = (1/3) \rho v_{kv}^2$$

$$p = (1/3) \cdot 1,0 \cdot (450)^2$$

$$p \approx 6,75 \cdot 10^4 \text{ Pa}$$

Javob: $p \approx 67,5 \text{ kPa}$

9-masala yechimi

Ideal gazda:

$$U \sim T$$

$$U_2 / U_1 = T_2 / T_1 = 900 / 300 = 3$$

Javob: $U_2 / U_1 = 3$

10-masala yechimi

$$v_{kv} = \sqrt{\frac{3RT}{M}}$$

Bir xil bo'lsa:

$$T_1 / M_1 = T_2 / M_2$$

$$T_1 / T_2 = M_1 / M_2$$

$$T_1 / T_2 = 2 / 32 = 1 / 16$$

Javob: $T_1 / T_2 = 1/16$