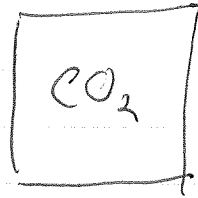


3,7) 2 kg CO₂

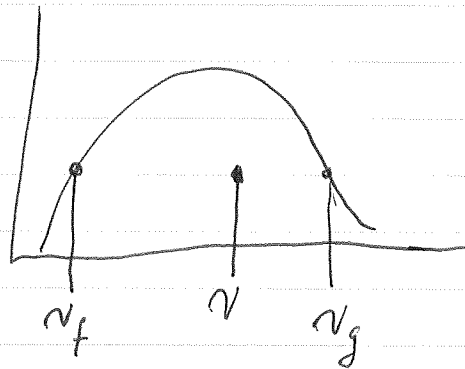


$T = 233 \text{ K}$
 $V = 0,05 \text{ m}^3$

$x = ?$

$v_f = 0,896 \cdot 10^{-3} \text{ m}^3/\text{kg}$

$v_g = 3,824 \cdot 10^{-2} \text{ m}^3/\text{kg}$ $x =$



$v = ?$

$v = \frac{V}{m} = \frac{0,05}{2} = 0,025$

$x = \frac{0,025 - v_f}{v_g - v_f}$

$x = \frac{0,025 - 0,896 \cdot 10^{-3}}{3,824 \cdot 10^{-2} - 0,896 \cdot 10^{-3}}$

$= \frac{0,024104}{0,03728} = 0,645$

3,8) 0,1 m³ of R_{134a}

$P = 4 \cdot 10^5 \text{ Pa}$

$T = 100^\circ\text{C}$

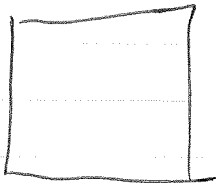
wat is de massa

Tabel A12 $\Rightarrow v = 0,07327 \text{ m}^3/\text{kg}$

$v = \frac{V}{m}$

$m = \frac{V}{v} = \frac{0,1}{0,07327} = 1,36 \text{ kg}$

3.9)



$$V = 0,01 \text{ m}^3$$

$$m = 1,2 \text{ kg}$$

R₂₂

$$P = 10 \text{ bar}$$

$$T = ?$$

$$v = \frac{0,01}{1,2} = 0,0083 \text{ m}^3/\text{kg}$$

$$\text{By } 10 \text{ bar } v_{\text{sat}} = 0,023 \text{ m}^3/\text{kg}$$

$v < v_{\text{sat}}$ das mengsel gas/loesly

$$\underline{\underline{T = T_{\text{sat}} = 23,40 \text{ } ^\circ\text{C}}}$$

3.10)

R₂₂

1 kg

$$x = 0,75$$

P = 1 bar

$$x = \frac{v - v_f}{v_g - v_f}$$

$$v_g = 0,2152 \text{ m}^3/\text{kg}$$

$$v_f = 0,7093 \cdot 10^{-3} \text{ m}^3/\text{kg}$$

$$0,75 = \frac{v - 0,7093 \cdot 10^{-3}}{0,2152 - 0,7093 \cdot 10^{-3}} \Rightarrow v = 0,161 \text{ m}^3$$

$$m = \frac{V}{v} = \frac{1}{0,161} = 6,2 \text{ kg}$$

3.11

$$P = 150 \cdot 10^5 \text{ Pa}$$

$$V = 0,2 \text{ m}^3$$

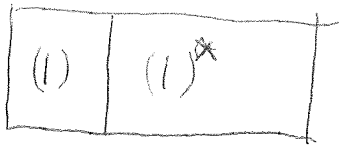
$$m_p = 3,8 \text{ kg}$$

$$m_g = 4,2 \text{ kg}$$

$$m = m_p + m_g$$

$$v = \frac{V}{m} = \frac{0,2}{3,8 + 4,2} = 0,025 \text{ m}^3/\text{kg}$$

3.62)



$$\Delta U = \cancel{\delta Q} - \cancel{\delta W}$$

$$\Delta U = 0$$

$$m c_v (T_2 - T_1) = m^* c_v^* (T_2 - T_1^*)$$

$$T_2 = \frac{m c_v T_1 + m^* c_v^* T_1^*}{m c_v + m^* c_v^*} = \frac{1 \cdot 0,726 \cdot 350 + 3 \cdot 0,750 \cdot 450}{1 \cdot 0,726 + 3 \cdot 0,750} = 426 \text{ K}$$

Tabel A20

$$V_1 = \frac{m R T_1}{P_1} = \frac{1 \cdot \frac{8314}{29} \cdot 350}{1 \cdot 10^5} = 0,201 \text{ m}^3$$

$$V_1^* = \frac{m^* R T_1^*}{P_1^*} = \frac{3 \cdot \frac{8314}{44} \cdot 450}{3 \cdot 2 \cdot 10^5} = 1,273 \text{ m}^3$$

$$V = V_1 + V_1^* = 1,474 \text{ m}^3$$

$$P_2 = \frac{m R T_2}{V_2} = \frac{m^* R T_2^*}{V_2^*} = \frac{m^* R T_2}{V_2^*}$$

$$\frac{V_2}{V_2^*} = \frac{m}{m^*} = \frac{1}{3} \quad \frac{V_2^*}{V_2} = \frac{m^*}{m} = \frac{3}{1}$$

$$V_2 = 0,49 \text{ m}^3$$

$$P_2 = \frac{m R T_2}{V_2} = 2,49 \cdot 10^5 \text{ Pa}$$