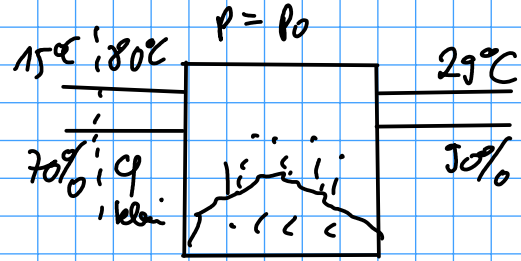


Aufgabe 3



$$\Delta \dot{w}_d = 500 \frac{\text{kg}}{\text{h}}$$

Idee: x_1, x_2 berechnen

$$x = \frac{M_w}{M_L} \frac{\varphi p_s(T)}{p - \varphi p_s(T)}$$

$$p_s(15^\circ\text{C}) = 0,01706 \text{ bar}$$

$$x_1 = 0,007419$$

$$= 7,419 \frac{\text{g}}{\text{kg}}$$

$$x_{1,2} = \frac{\dot{w}_{w1,2}}{\dot{w}_L}$$

$$\dot{w}_{w1,2} = \dot{w}_L x_{1,2}$$

$$\begin{aligned} \Delta \dot{w}_d &= \dot{w}_{w2} - \dot{w}_{w1} \\ &= \dot{w}_L (x_2 - x_1) \end{aligned}$$

$$\begin{aligned} \Rightarrow \dot{w}_L &= \frac{\Delta \dot{w}_d}{x_2 - x_1} \\ &= 8,929 \frac{\text{kg}}{\text{s}} \end{aligned}$$

$$p_s(29^\circ\text{C}) = 0,04003 \text{ bar}$$

$$x_2 = 0,02297$$

$$\begin{aligned} S_1 &= \frac{p M_L}{R T_1} \left(1 - 0,3781 \varphi_1 \frac{p_s}{p} \right) \\ &= 1,215 \frac{\text{kg}}{\text{m}^3} \end{aligned}$$

$$\begin{aligned} S_1 &= \frac{\dot{w}_1}{\dot{V}_1} \\ \dot{w}_1 &= \dot{w}_L + \dot{w}_{w1} \\ &= \dot{w}_L + \dot{w}_L x_1 \\ &= \dot{w}_L (1 + x_1) \\ &= 8,995 \frac{\text{kg}}{\text{s}} \end{aligned}$$

$$\dot{V}_1 = \frac{\dot{w}_1}{S_1} = 7,381 \frac{\text{m}^3}{\text{s}}$$