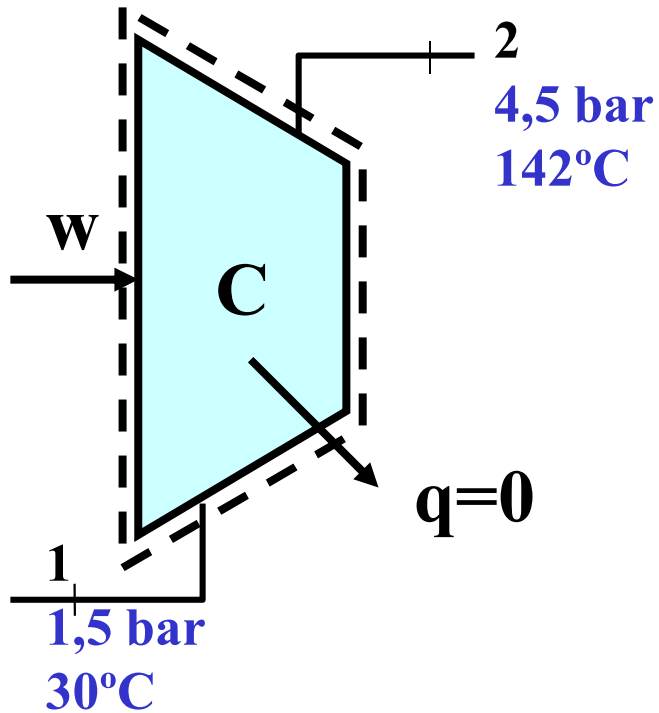


## PROBLEMA-1



Mezcla en volumen: N<sub>2</sub> (0,6) y CO<sub>2</sub> (0,4), 2 kg/s

- Determinar la potencia y eficiencia

$$\dot{W} = \dot{m} (h_1 - h_2) = -217,5 \text{ kW}$$

$$h_1 - h_2 = \sum_{i=1}^j y_i [\bar{h}_i(T_2) - \bar{h}_i(T_1)] / M$$

$$M = \sum_{i=1}^j y_i M_i = 34,41 \text{ kg/kmol}$$

$$\bar{s}_{2s} - \bar{s}_1 = \sum_{i=1}^j y_i [\bar{s}_i(T_2, p_{i2}) - \bar{s}_i(T_1, p_{i1})] = 0$$

$$\eta_{sc} = \frac{h_1 - h_{2s}}{h_1 - h_2} = 0,854$$

$$y_{N_2} [\bar{s}_{2s}^0 - \bar{s}_1^0 - \bar{R} \ln P_2/P_1]_{N_2} + y_{CO_2} [\bar{s}_{2s}^0 - \bar{s}_1^0 - \bar{R} \ln P_2/P_1]_{CO_2} = 0$$

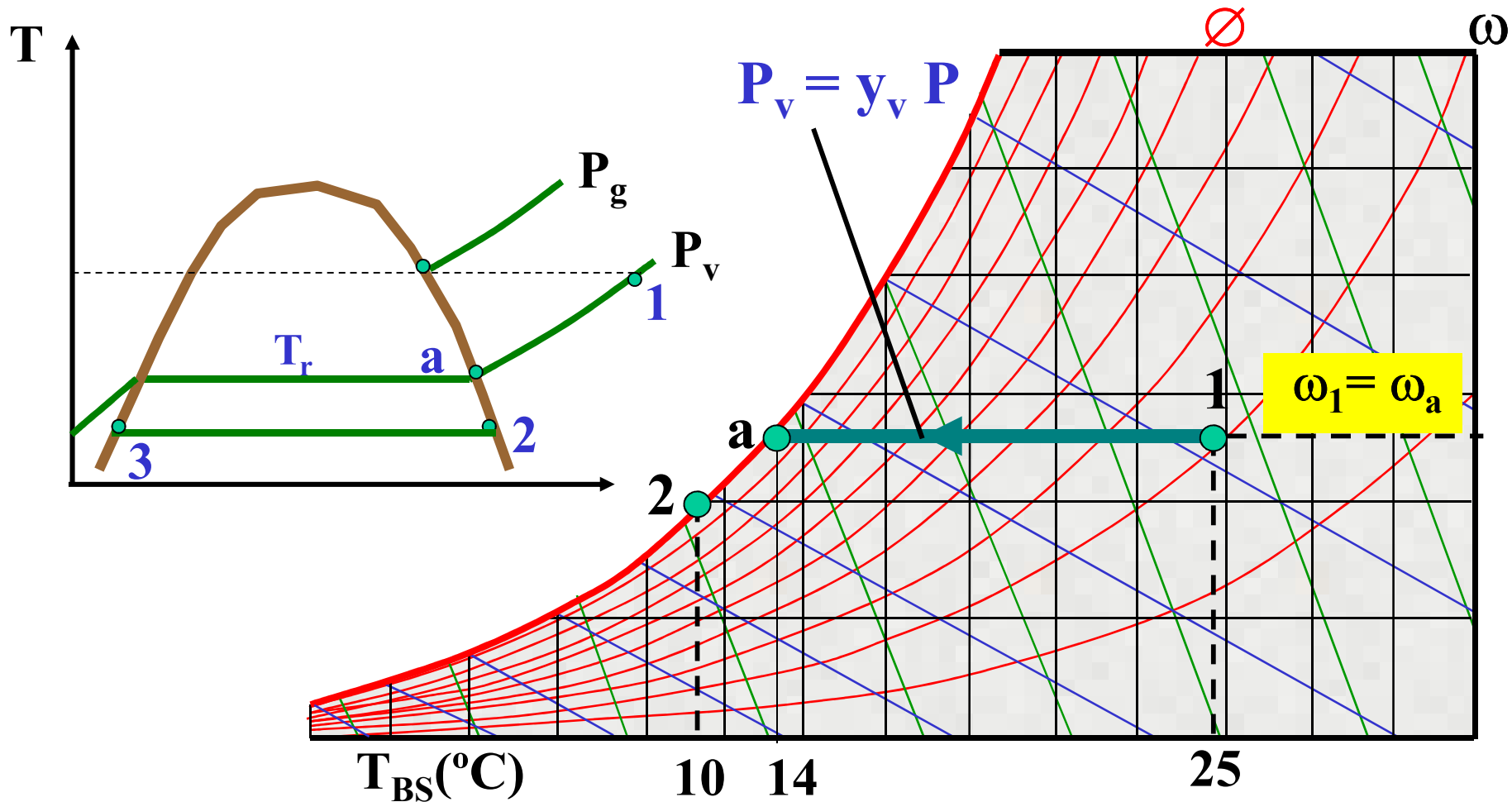
Mediante proceso iterativo:  $T_{2s} = 400\text{K}$

$$h_1(T_1) - h_{2s}(T_{2s})$$

Aire húmedo a 25°C, 1 atm,  $\phi=50\%$  es enfriado,  $p=\text{cte}$  y 10°C

**PROBLEMA-2**

- Determinar si ocurre condensación y su valor



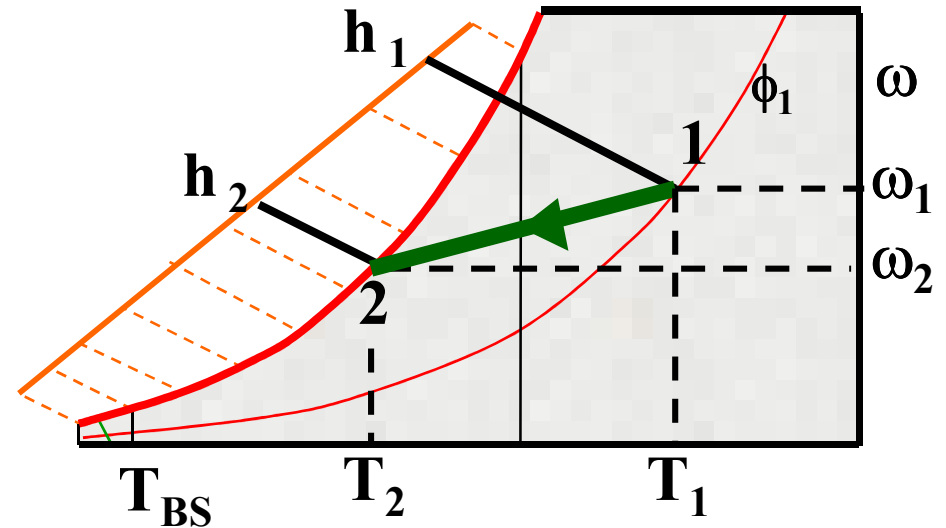
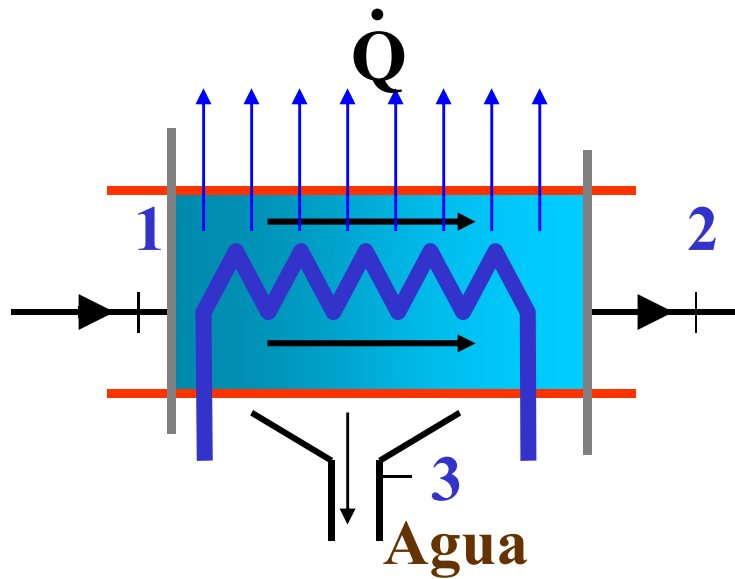
$$\dot{m}_w = \dot{m}_{v1} - \dot{m}_{v2}$$

$$\dot{m}_w / \dot{m}_a = \omega_1 - \omega_2 = 0,01 - 0,0076 = 0,0024 \text{ kg (v)/kg (a)}$$

Deshumidificador,  $T_1, \phi_1, T_2, \phi_2$ (saturación),  $P_1=P_2=P_3, T_3$

**PROBLEMA-3**

- Cantidad de agua que condensa y calor intercambiado



$$\dot{m}_w / \dot{m}_a = \omega_1 - \omega_2$$

$$0 = \dot{Q} + (\dot{m}_a h_{a1} + \dot{m}_{v1} h_{v1}) - \dot{m}_w h_w - (\dot{m}_a h_{a2} + \dot{m}_{v2} h_{v2})$$

$$\dot{Q} / \dot{m}_a = (h_a + \omega h_g)_2 - (h_a + \omega h_g)_1 + (\omega_1 - \omega_2) h_{f3}$$