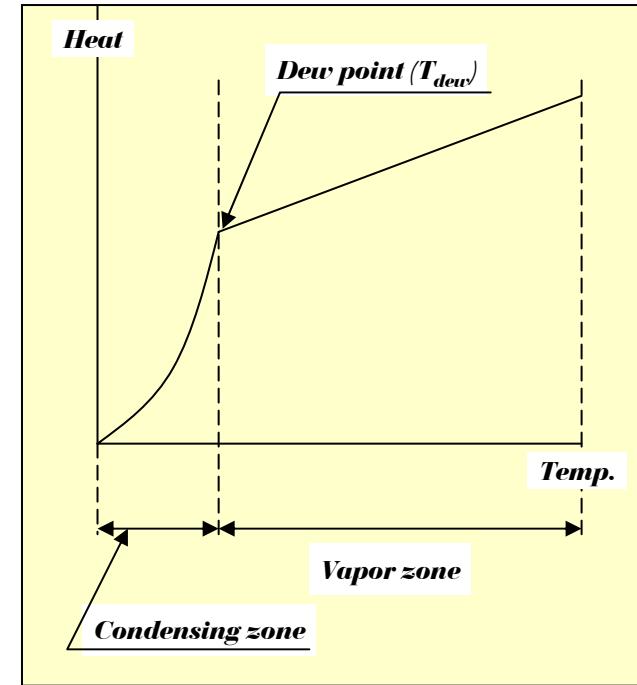
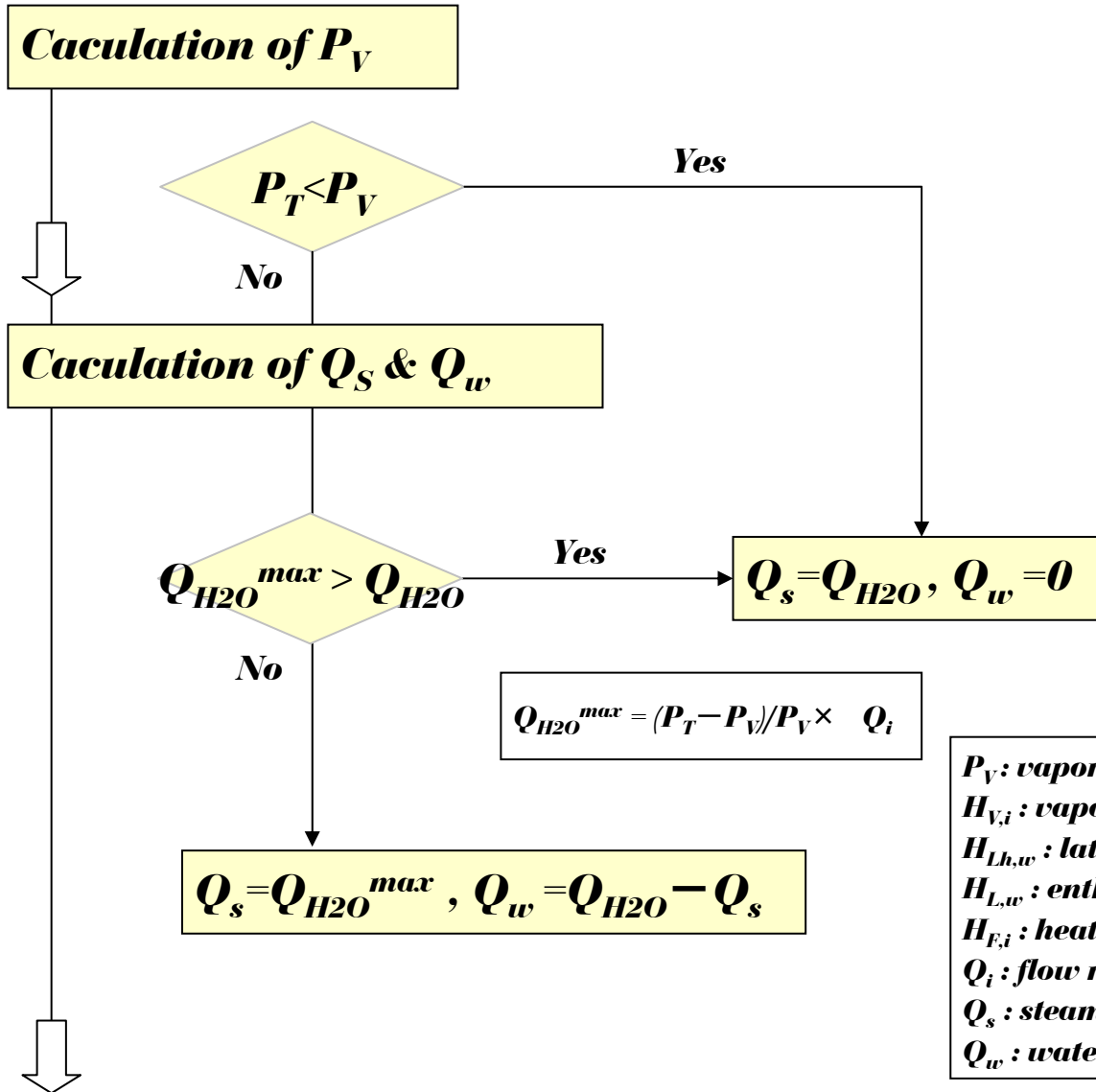


Material & Heat Balance Flow Chart (1)



P_V : vapor pressure of water
 $H_{V,i}$: vapor enthalpy of pure component
 $H_{Lh,w}$: latent heat of water
 $H_{L,w}$: enthalpy of water
 $H_{F,i}$: heat of formation of pure component
 Q_i : flow rate of pure component except water & steam
 Q_s : steam flow rate
 Q_w : water flow rate

Material & Heat Balance Flow Chart (2)



Caculation for Enthalpy of pure components & water/steam

$$Cp_{V,i} = a_{V,i} + b_{V,i}T + c_{V,i}T^2 + d_{V,i}T^3 + e_{V,i}/T^2$$

$$Cp_{L,i} = a_{L,i} + b_{L,i}T + c_{L,i}T^2 + d_{L,i}T^3 + e_{L,i}/T^2$$

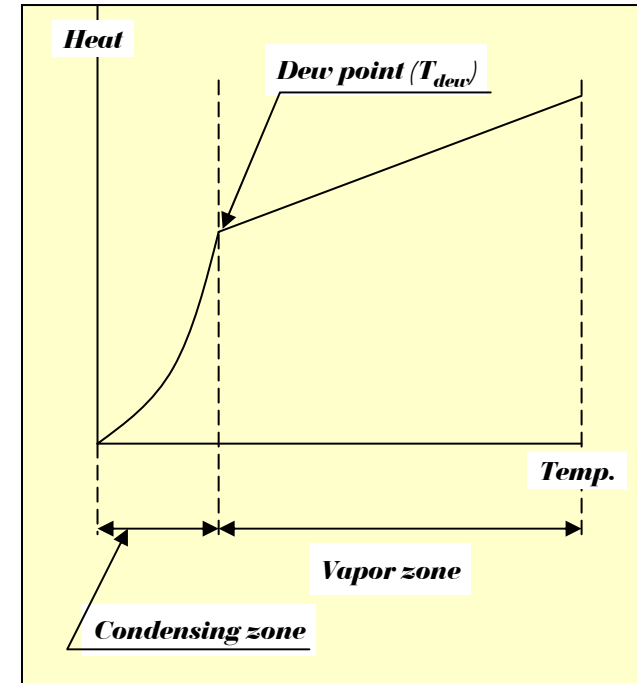
$$H_{V,i} = a_{V,i}T + b_{V,i}T^2/2 + c_{V,i}T^3/3 + d_{V,i}T^4/4 - e_{V,i}/T + f_{V,i}$$

$$H_{L,i} = a_{L,i}T + b_{L,i}T^2/2 + c_{L,i}T^3/3 + d_{L,i}T^4/4 - e_{L,i}/T + f_{L,i}$$

$$H_{L,w} = A(1 - T/T_c)^n$$

Caculation for Total heat H_{total}

$$H_{total} = \sum_{i=1}^n H_{V,i}Q_i + H_{Lh,w}Q_s + H_{L,w}(Q_w + Q_s) + \sum_{i=1}^n H_{F,i}Q_i$$



P_V : vapor pressure of water

$H_{V,i}$: vapor enthalpy of pure component

$H_{Lh,w}$: latent heat of water

$H_{L,w}$: enthalpy of water

$H_{F,i}$: heat of formation of pure component

Q_i : flow rate of pure component except water & steam

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Q_w : water flow rate