Equilibrio liquido - vapore

$$\hat{f}_i^{\,l} = \hat{f}_i^{\,v}$$

Phi - phi

$$\hat{f}_i^{\,v} = y_i \hat{\phi}_i^{\,v} P$$

$$\hat{f}_i^{\,l} = x_i \phi_i^{\,l} P$$

$$\frac{y_i}{x_i} = k_i = \frac{\hat{\phi}_i^{\,l}}{\hat{\phi}_i^{\,v}}$$

Gamma - phi

$$\hat{f}_i^{\,v} = y_i \hat{\phi}_i^{\,v} P$$

$$\hat{f}_i^{\,l} = x_i f_i^{\,l} \gamma_i$$

$$k_i = \frac{\gamma_i}{P \hat{\phi}_i^{\,v}} P_i^s \phi_i^s \exp\left(\int_{P_i^S}^{P} \frac{v_i^l}{RT} dP \right)$$

Equilibrio liquido - vapore

Bassa pressione

$$\frac{y_i}{x_i} = k_i = \frac{\gamma_i P_i^s}{P}$$

Bassa pressione e idealità in fase liquida

$$\frac{y_i}{x_i} = k_i = \frac{P_i^s}{P}$$

Equilibrio liquido – vapore

$$\frac{y_1}{x_1} = \frac{P_1^S}{P}$$

$$\frac{y_2}{x_2} = \frac{P_2^S}{P}$$

$$y_1 = \frac{P_1^S}{P} x_1$$

$$y_2 = \frac{P_2^S}{P} x_2$$

$$y_1 + y_2 = 1 = \frac{P_1^S}{P} x_1 + \frac{P_2^S}{P} x_2$$

$$P = P_1^S x_1 + P_2^S x_2$$

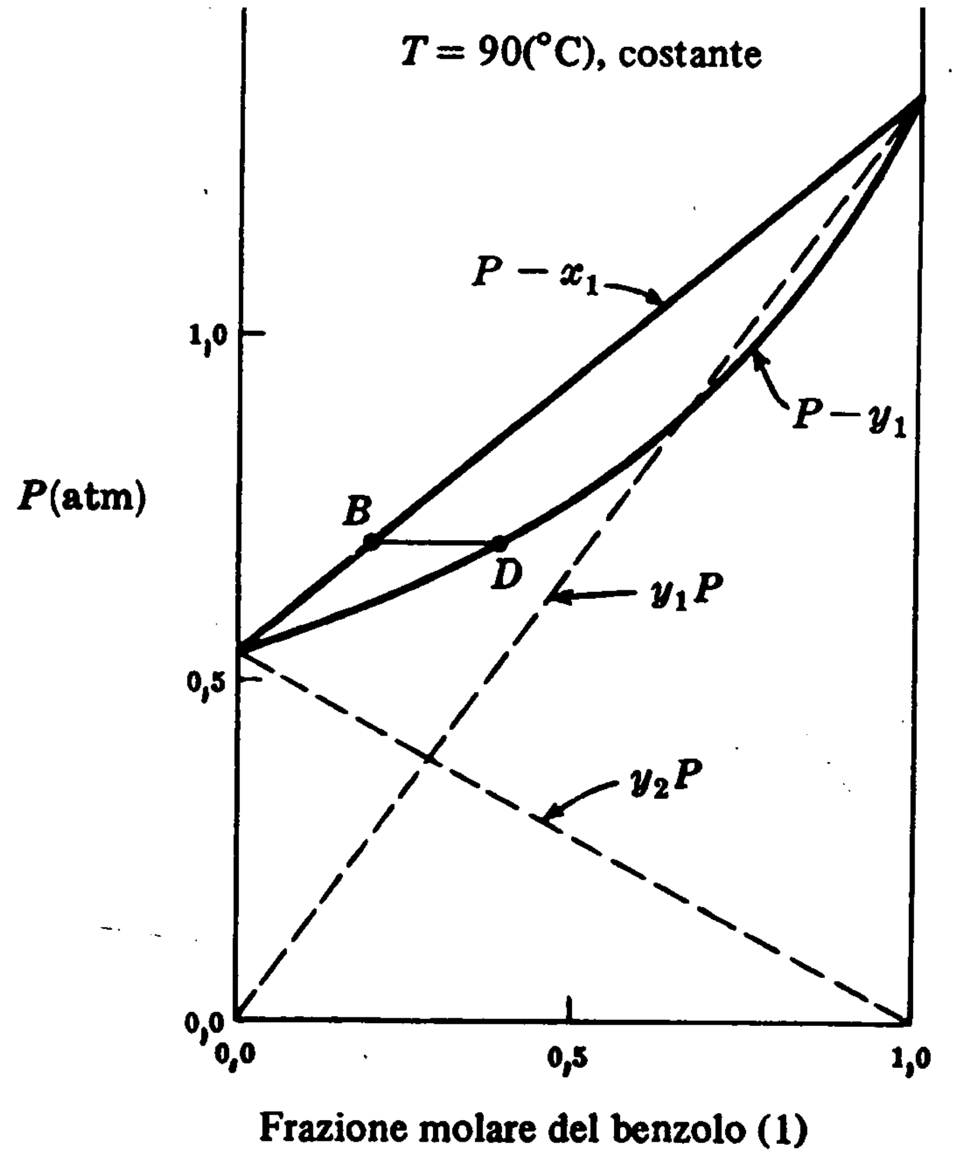
$$x_1 = \frac{P}{P_1^S} y_1$$

$$x_2 = \frac{P}{P_2^S} y_2$$

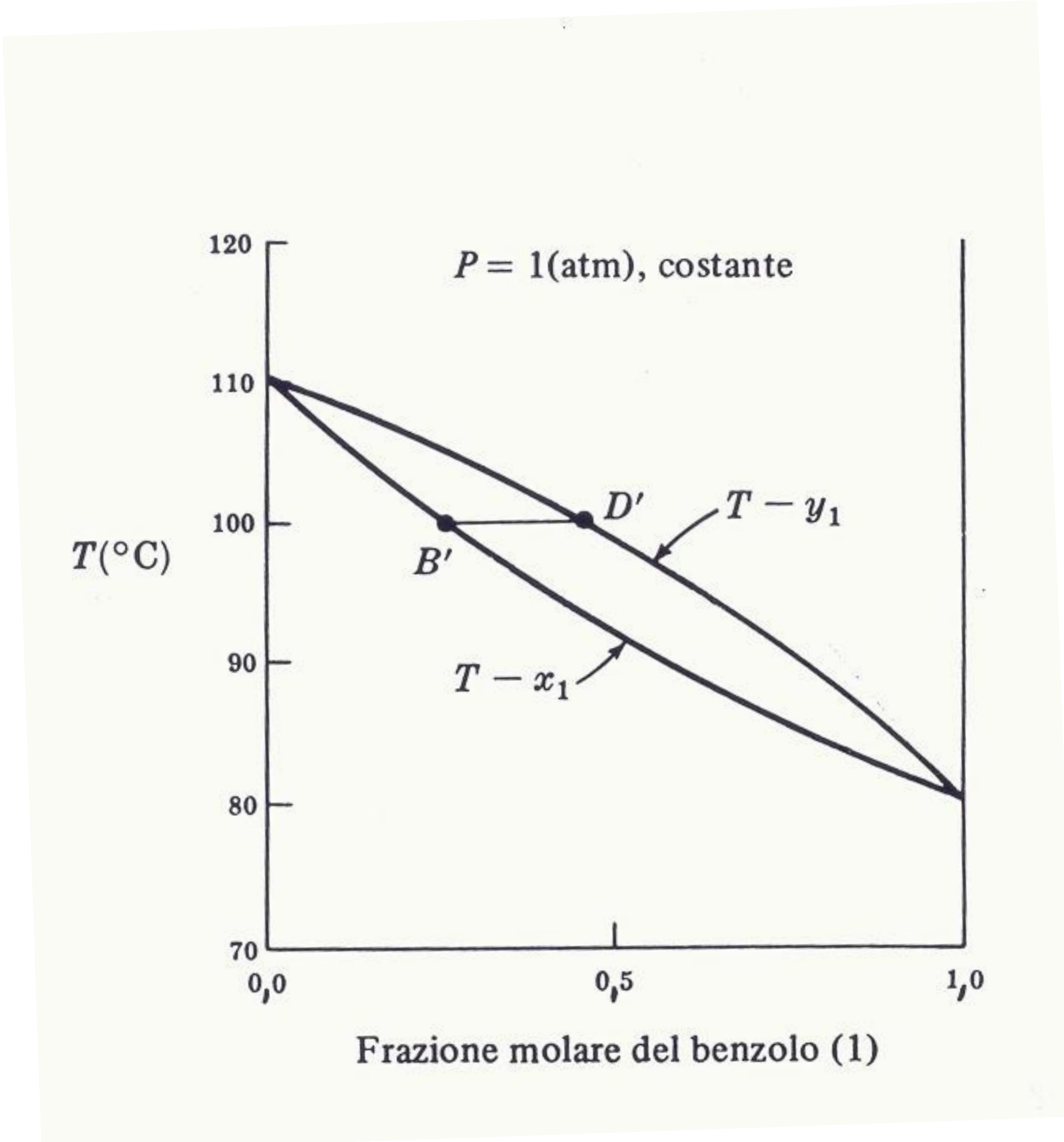
$$x_1 + x_2 = 1 = \frac{P}{P_1^S} y_1 + \frac{P}{P_2^S} y_2$$

$$\frac{1}{P} = \frac{1}{P_1^S} y_1 + \frac{1}{P_2^S} y_2$$

Equilibrio liquido - vapore



Equilibrio liquido - vapore



Equilibrio liquido - vapore

$$\alpha_{12} = \frac{k_1}{k_2} = \frac{y_1}{x_1}\frac{x_2}{y_2} = \frac{P_1^S}{P_2^S}$$

$$\frac{y_1}{1-y_1} = \alpha_{12}\frac{x_1}{1-x_1}$$

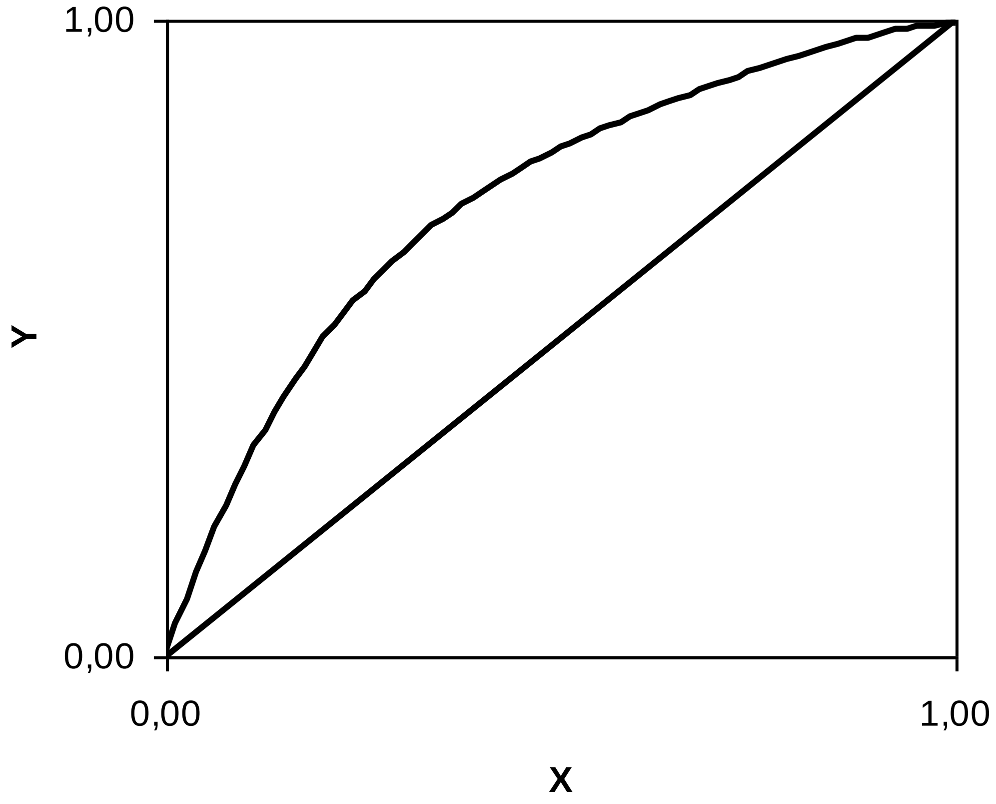
$$y_1 = \frac{\alpha_{12}x_1}{1+(\alpha_{12}-1)x_1}$$

$$\frac{\partial y}{\partial x} = \frac{\alpha[1+(\alpha-1)x]-\alpha x(\alpha-1)}{[1+(\alpha-1)x]^2}$$

$$\left(\frac{\partial y}{\partial x}\right)_{x=0} = \alpha$$

$$\left(\frac{\partial y}{\partial x}\right)_{x=1} = \frac{1}{\alpha}$$

Equilibrio liquido - vapore



Equilibrio liquido - vapore

$$\ln \alpha = \ln P_1^S - \ln P_2^S$$

$$\ln P_i^S = A_i - \frac{\Delta H_i^{ev}}{T}$$

$$\ln P_i^S = \frac{\Delta H_i^{ev}}{T_i^{eb}} - \frac{\Delta H_i^{ev}}{T}$$

$$\ln \alpha = \frac{\Delta H_1^{ev}}{T_1^{eb}} - \frac{\Delta H_2^{ev}}{T_2^{eb}} + \frac{1}{T}\left(\Delta H_2^{ev} - \Delta H_1^{ev}\right)$$

$$\frac{\Delta H_i^{ev}}{T_i^{eb}} = \Delta S_i^{ev} = \cos t.$$

$$\ln \alpha = K \frac{\left(T_2^{eb} - T_1^{eb}\right)}{T}$$