Ecuaciones Destilación Multicomponente

Ecuación de Fenske

$$N\min = \frac{\log\left(\dfrac{\dfrac{x_{LKD}}{x_{HKD}}}{\dfrac{x_{LKB}}{x_{HKB}}}\right)}{\log(\alpha_{LK;HK})}$$

$$b_i = \frac{fi}{1 + \dfrac{d_r}{b_r} \cdot \alpha_{i,r}^{N\min}} \qquad\qquad d_i = \frac{fi \cdot \dfrac{d_r}{b_r} \alpha_{i,r}^{N\min}}{1 + \dfrac{d_r}{b_r} \cdot \alpha_{i,r}^{N\min}}$$

Método de Underwood

$$\sum_{i=1}^{n} \frac{\alpha_{i,HK} \cdot z_i}{\alpha_{i,HK} - \vartheta} = 1 - q$$

$$\alpha_i = \left(\alpha_{i,d} \cdot \alpha_{i,b}\right)^{\frac{1}{2}}$$

$$\alpha_i = \left(\alpha_{i,d} \cdot \alpha_{i,f} \cdot \alpha_{i,b}\right)^{\frac{1}{3}}$$

$$\sum_{i=1}^{n} \frac{\alpha_{i,HK} \cdot x_{i,d}}{\alpha_{i,HK} - \vartheta} = R_{\min} + 1$$

$$\frac{d_i}{fi} = \frac{10^A \alpha_{i,r}^{B}}{1 + 10^A \cdot \alpha_{i,r}^{B}} \quad \frac{b_i}{fi} = \frac{1}{1 + 10^A \cdot \alpha_{i,r}^{B}} \quad A = -\log\left(\frac{\dfrac{b_{HK}}{f_{HK}}}{1 - \dfrac{b_{HK}}{f_{HK}}}\right)$$

$$B = \frac{\log\left(\left(\dfrac{\dfrac{d_{LK}}{f_{LK}}}{1 - \dfrac{d_{LK}}{f_{LK}}}\right) \cdot \left(\dfrac{\dfrac{b_{HK}}{f_{HK}}}{1 - \dfrac{b_{HK}}{f_{HK}}}\right)\right)}{\log(\alpha_{LK,HK})}$$

Ecuación de Molokanov

$$X = \frac{R - R\min}{R + 1} \qquad\qquad \frac{N - N_{\min}}{N + 1} = 1 - \exp\left(\left(\frac{1 + 54{,}4X}{11 + 117{,}2X}\right) \cdot \left(\frac{X - 1}{X^{0,5}}\right)\right)$$

Ecuación de Kirkbride

$$\frac{N_R}{N_A} = \left[\frac{z_{HK,F}}{z_{LK,F}}\left(\frac{x_{LK,B}}{x_{HK,D}}\right)^2 \frac{B}{D}\right]^{0,206}$$

$\dfrac{N-N_{min}}{N+1}$

$\dfrac{R-R_{min}}{R+1}$

$\dfrac{N-N_{min}}{N+1}$

$\dfrac{R-R_{min}}{R+1}$