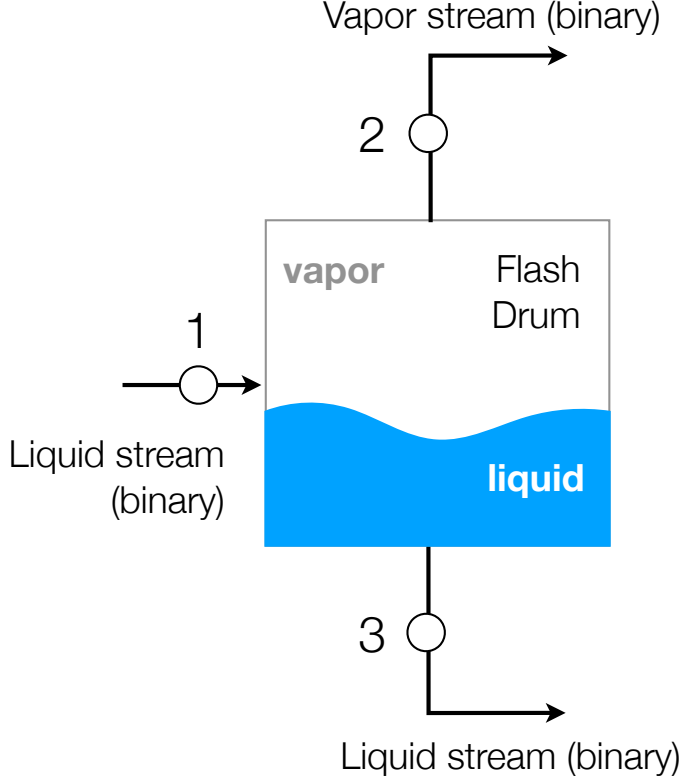

Mol flow rate *liquid* stream (3) (mol/t)

Total mol balance

$$\dot{F} = \dot{L} + \dot{V}$$

Mol flow rate feed stream (1) (mol/t)

Mol flow rate *vapor* stream (2) (mol/t)

Mol fraction component i in *vapor* stream (2) (mol/t)

Species mol balance

$$\dot{F}x_{i,1} = \dot{V}y_{i,2} + \dot{L}x_{i,3} \qquad i = 1,2$$

Mol fraction component i in *feed* stream (1) (mol/t)

Mol fraction component i in *liquid* stream (3) (mol/t)

Inside* the Flash Drum: *we assume the system is in Vapor Liquid Equilibrium (VLE):*

difficult: but correct

$$\hat{\phi}_i^v y_i P = \gamma_i x_i \phi_i^{sat} P_i^{sat} \qquad i = 1,2$$

easy: but inaccurate (Raoult's Law)

$$y_i P = x_i P_i^{sat} \qquad i = 1,2$$