Absorption and Stripping (pp. 317-325, Seader and Henley)

Absorption: gas is purified; solute is absorbed from gas into liquid stream
Stripping: liquid is purified; solute stripped from liquid into gas

For dilute streams, assume constant gas and liquid flow rates:
\[ G_0 = G_a = G \]
\[ L_0 = L_a = L \]

Absorption

- \( y_n \) is usually specified
- mass balance around top of column
- operating line:
  \[ y = x \left( \frac{L}{G} \right) + y_n - x_n \left( \frac{L}{G} \right) \]
- gas film controls mass transfer
- driving force = \( (y - y^*) \)

Stripping

- \( x_0 \) is usually specified
- mass balance around bottom of column
- operating line:
  \[ y = x \left( \frac{L}{G} \right) + y_0 - x_0 \left( \frac{L}{G} \right) \]
- liquid film controls mass transfer
- driving force = \( (x^* - x) \)
Absorption: operating line above PEQ line

Stripping: operating line below PEQ line