

$$P = \frac{RT}{V_m - b}$$

$$V_m = \frac{RT + bP}{P}$$

de tal forma que

$$Z = \frac{V_m}{V_m^0} > 1$$

$$\Rightarrow \frac{RT/P}{RT/P^0} + \frac{b}{RT/P^0} = \frac{P^0}{P} + \frac{bP^0}{RT} > 1$$

$$\Rightarrow P^0 \left(\frac{1}{P} + \frac{b}{RT} \right) > 1$$

$$\Rightarrow P^0 > P \left(1 - \frac{bP}{RT} \right)$$

$$\Rightarrow \frac{bP^0}{RT} P > 1 - P^0$$

$$\Rightarrow P > (1 - P^0) \frac{RT}{bP^0}$$

$$\Rightarrow P > RT \left(\frac{1}{P^0} - 1 \right) \frac{1}{b}$$

$$\Rightarrow P > \underbrace{RT}_{\text{const.}} \left(\frac{V_m^0}{RT} - 1 \right) \frac{1}{b}$$