Klinkenberg correction

The laboratory measurements of air (or any other gas) permeability k_{air}[NTP] should be translated to reservoir pressure conditions k_{air}[p_i] using the Klinkenberg equation :

(1) $$k_{\text{air}}[p_i] = \frac{k_{\text{air}}[\text{NTP}]}{1 + b/p}$$

The b value is calibrated in laboratory at reservroir pressure-temperature conditions:

(2) $$k_{air}(p) = k_\infty \left(1 + \frac{b}{p} \right)$$

For low permeability formations the b-value is usually higher and the Klinkenberg correction is bigger.