

Cross-phase exchange coefficients

Dimensionless ratio of the C-component mass in α -phase $m_{C\alpha}(p, T)$ to the total mass of α -phase $m_{\alpha}(p, T)$:

$$(1) \quad \xi_{C\alpha}(p, T) = \frac{m_{C\alpha}(p, T)}{m_{\alpha}(p, T)}$$

It's a function of pressure p and temperature T and one of the key objectives of fluid modelling.

The most important cross-phase exchange coefficients in practise are related to Solution GOR R_s and Vaporized Oil Ratio R_v in Volatile Oil fluid model:

$$(2) \quad \xi_{Go} = \left(1 + \frac{1}{R_s} \frac{\rho_o^*}{\rho_g^*} \right)^{-1}$$

$$(3) \quad \xi_{Og} = \left(1 + \frac{1}{R_v} \frac{\rho_g^*}{\rho_o^*} \right)^{-1}$$

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