

Mixing Rules for Viscosity

Arrhenius	0 v a r i a b l e s	(1) $\ln \mu_{12} = x_1 \cdot \ln \mu_1 + x_2 \cdot \ln \mu_2$
Lederer-Roegiers	1 v a r i a b l e	(2) $\ln \mu_{12} = \frac{x_1}{x_1 + \alpha x_2} \cdot \ln \mu_1 + \frac{\alpha x_2}{x_1 + \alpha x_2} \cdot \ln \mu_2$
Grunberg-Nissan	1 v a r i a b l e	(3) $\ln \mu_{12} = x_1 \cdot \ln \mu_1 + x_2 \cdot \ln \mu_2 + \epsilon x_1 x_2$
Oswal-Desai	3 v a r i a b l e s	(4) $\ln \mu_{12} = x_1 \cdot \ln \mu_1 + x_2 \cdot \ln \mu_2 + \epsilon x_1 x_2 + K_1 x_1 x_2 (x_1 - x_2) + K_2 x_1 x_2 (x_1 - x_2)^2$
Kendall-Monroe	0 v a r i a b l e s	(5) $v_{12} = \left[x_1 \cdot v_1^{1/3} + x_2 \cdot v_2^{1/3} \right]^3$

Refutas	0 v a r i a b l e s	$\left. \begin{matrix} 6 \\ \end{matrix} \right\} \nu_{12} = \exp \left[\exp \left(\frac{A_{12} - 10.975}{14.534} \right) - 0.8 \right], \quad A_{12} = y_1 A_1 + y_2 A_2, \quad A_i = 14.534 \ln[\ln(\nu_i + 0.8)] + 10.975, \quad i = \{1, 2\}$
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The [Lederer-Roegiers equation](#) is reported to be the most accurate among single-variable models.

See also

[Physics](#) / [Fluid Dynamics](#) / [Mixing Rules](#)

References

[Boris Zhmud, Viscosity Blending Equations, Lube-tech, 121, 2014](#)