Lederer-Roegiers viscosity blending equation

(1) $$\ln \mu_{12} = \frac{x_1}{x_1 + \alpha\, x_2} \cdot \ln \mu_1 + \frac{\alpha\, x_2}{x_1 + \alpha\, x_2} \cdot \ln \mu_2$$

where

μ_{12}	dynamic viscosity of fluid mixture	μ_1	dynamic viscosity of the 1st fluid component	μ_2	dynamic viscosity of the 2nd fluid component
α	empirical model parameter	x_1	mole fraction of the 1st fluid component	x_2	mole fraction of the 2nd fluid component

The empirical parameter α can be fitted to lab data.

For $\alpha = 1$ it reduces to Arrhenius equation.

See also

Physics / Fluid Dynamics / Fluid Mixing Rules / Mixing Rules for Viscosity

References

1. E.L.Lederer,ZurTheorie derViskositätvonFlüssigkeiten,KolloidBeihefte34(1932)270-338.

2. M.Roegiers,(Sr.),L.Roegiers,Laviscositedes melanges de fluidesnormaux,Societedes Huiles deCavel & Roegiers,S. A.,Gand,1946.

3. M.Roegiers,(Sr.),Discussionofthefundamental equationofviscosity,Industrial LubricationandTribology3(1951)27-29. Lube 121.indd 2713/05/2014 09:53