

Problem 1B.3

Viscosity of suspensions. Data of Vand³ for suspensions of small glass spheres in aqueous glycerol solutions of ZnI₂ can be represented up to about $\phi = 0.5$ by the semiempirical expression

$$\frac{\mu_{\text{eff}}}{\mu_0} = 1 + 2.5\phi + 7.17\phi^2 + 16.2\phi^3 + \dots \quad (1B.3-1)$$

Compare this result with Eq. 1.6-2.

Answer: The Mooney equation gives a good fit of Vand's data if ϕ_0 is assigned the very reasonable value of 0.70.

³V. Vand, *J. Phys. Colloid Chem.*, **52**, 277–299, 300–314, 314–321 (1948).