

**Exercise 19**

1. Estimate the Bodenstein number for a straight cylindrical capillary with an inner diameter of  $d_t = 1.0 \text{ mm}$ . The space-time of the gaseous reactant is  $\tau = 1 \text{ s}$ . ( $D_m = 10^{-5} \text{ m}^2 \text{s}^{-1}$ )
2. Estimate the diameter of a straight cylindrical capillary with a length of  $L = 0.2 \text{ m}$  required to obtain a Bodenstein number of  $Bo = 100$ . The space-time of the liquid reactant is  $\tau = 300 \text{ s}$ . ( $\nu = 10^{-6} \text{ m}^2 \text{s}^{-1}$ ;  $D_m = 10^{-9} \text{ m}^2 \text{s}^{-1}$ ). Can we assume stratified flow?