**Hindered solute transport**

Hydrodynamic coefficients $K_{i,d}$ and $K_{i,c}$ introduced in eq 1 account for the effect of the finite pore size on diffusion and convection through pores. Several approximate relations of these hydrodynamic factors are available in the literature.[45] Analytical relations derived by Bungay and Brenner are among the most interesting ones as they were established for the entire range of solute to pore size ratios[45]

$$K_{i,d} = \frac{6\pi}{K_{i,t}} \tag{I}$$

$$K_{i,c} = \frac{\left(2-(1-\lambda_i)^2\right)K_{i,s}}{2K_{i,t}} \tag{II}$$

where $K_{i,t}$ and $K_{i,s}$ are defined as

$$K_{i,t} = \frac{9}{4}\pi^2\sqrt{2}(1-\lambda_i)^{-5/2}\left[1+\sum_{n=1}^{2}a_n(1-\lambda_i)^n\right]+\sum_{n=0}^{4}a_{n+3}\lambda_i^n \tag{III}$$

$$K_{i,s} = \frac{9}{4}\pi^2\sqrt{2}(1-\lambda_i)^{-5/2}\left[1+\sum_{n=1}^{2}b_n(1-\lambda_i)^n\right]+\sum_{n=0}^{4}b_{n+3}\lambda_i^n \tag{IV}$$

with $a_1$ = -73/60, $a_2$ = 77.293/50.400, $a_3$ = -22.5083, $a_4$ = -5.6117, $a_5$ = -0.3363, $a_6$ = -1.216, $a_7$ = 1.647, $b_1$ = 7/60, $b_2$ = -2.227/50.400, $b_3$ = 4.0180, $b_4$ = -3.9788, $b_5$ = -1.9215, $b_6$ = 4.392, $b_7$ = 5.006 and $\lambda_i = r_{i,Stokes} / r_p$ where is $r_{i,Stokes}$ stands for the Stokes radius of the ion *i* defined as follows

$$r_{i,Stokes} = \frac{k_B T}{6\pi\eta D_i} \tag{V}$$

where $k_B$ is the Boltzmann constant and $\eta$ is the solution viscosity.