$$\frac{\mathrm{d}x}{\mathrm{d}t} = 0 \tag{9}$$

$$\frac{\mathrm{d}P_x}{\mathrm{d}t} = \frac{\mathrm{d}\sum_{i=1}^{\infty} i \cdot x_i}{\mathrm{d}t} = k_p \cdot M \cdot x \tag{10}$$

$$\frac{\mathrm{d}S_x}{\mathrm{d}t} = \frac{\mathrm{d}\sum_{i=1}^{\infty} i^2 \cdot x_i}{\mathrm{d}t} = k_p \cdot M \cdot (2P_x + x) - k_{tr}\left[\frac{x \cdot T_x}{3} - P_x \cdot S_x + P_x \cdot \left(P_x - \frac{x}{3}\right)\right] \tag{11}$$

$$\frac{\mathrm{d}y}{\mathrm{d}t} = \frac{\mathrm{d}\sum_{i=1}^{\infty} y_i}{\mathrm{d}t} = -k_{tr} \cdot [(P_x - x) \cdot y + x \cdot (P_y - y)] \tag{12}$$

$$\frac{dP_y}{dt} = \frac{d\sum_{i=1}^{\infty} i \cdot y_i}{dt} = k_p \cdot M \cdot y - k_{tr} \cdot [(P_x - x) \cdot P_y + x \cdot (S_y - P_y)] \quad (13)$$

$$\frac{dS_y}{dt} = \frac{d\sum_{i=1}^{\infty} i^2 \cdot y_i}{dt} = k_p \cdot M \cdot (2P_y + y) - k_{tr} \cdot [(P_x - x) \cdot S_y + x \cdot (T_y - P_y)] \quad (14)$$

$$w = \frac{Disp - \frac{1}{\overline{\overline{DP}}_n} + \frac{1}{\overline{\overline{DP}}_n^2} - 1}{\left(1 - \frac{1}{\overline{\overline{DP}}_n}\right)^2} \tag{16}$$

$$T_x = T_y + T_z \tag{18}$$

where

$$T_v = v \cdot T_v^0 \qquad (v = y, z) \tag{19}$$

$$T_v^0 = 3 \cdot (S_v^0 - \overline{\mathrm{DP}}_{n(v)}) + 1 + (\overline{\mathrm{DP}}_{n(v)} - 1)$$

$$\cdot [S_v^0 + w_v \cdot (2S_v^0 - 3\overline{\mathrm{DP}}_{n(v)} + 1)] \tag{21}$$

($v = y, z$; this equation can be derived according to the method applied in ref.[7] to derive the corresponding equation for $\overline{\mathrm{DP}}_n$ or applying general mathematical methods[6] for Polya distributions.

The reduced moments of distribution $S_v^0 = \Sigma i^2 P(i)_v$ and $\overline{\mathrm{DP}}_{n(v)} = \Sigma i P(i)_v$ were computed from the equations:

$$S_v^0 = S_v/v \qquad (v = x, y, z; S_z = S_x - S_y) \tag{22}$$

$$\overline{\mathrm{DP}}_{n(v)} = P_v/v \qquad (v = x, y, z; P_z = P_x - P_y) \tag{23}$$

A distribution parameter w_v (concerning populations $v = y, z$) was computed according to Eq. (18) on the basis of the polydispersity ratios obtained from the relationship:

$$Disp_{(v)} = S_v \cdot v/P_v^2 \tag{24}$$