The author regrets that in the above article, some of the equations were incorrectly printed and an incomplete version of the Nomenclature was printed. The corrected equations and the complete Nomenclature will now follow.

\[
\frac{d[VR]}{dt} = q_0[M_1] - \frac{n_{NP}}{N_A}k_{pol}[M_1]_{pol} - [R_7]_{aq}V_{aq}k_{eqw}[M_1]_{aq}
\]

(4)

\[
\frac{d[V_0]}{dt} = \frac{\tilde{n}_{NP}k_{M_1}M_1}{N_A} - [R_2]_{aq}V_{aq}k_{eqw}[M_1]_{aq}
\]

(6)

\[
[R_{A dq}] = \frac{\sum_{i=A,B}k_{eqw}[M_i]_{aq}}{\tilde{n}_{NP}k_{M_1}M_1 + \frac{k_{eqw}N_{eq}}{V_{aq}} + \frac{k_{p}k_{f}N_{mic}}{V_{aq}NA}}
\]

(22)

\[
\frac{d[V_0]\sum_{j=A,B,W,P}[M_j]C_{j1}(T_i - T_{eq})}{dt} = \sum_{j=A,B,W}w_jq_0C_{j1}(T_i - T_{eq}) + \sum_{i=A,B}\left[\frac{\tilde{n}_{NP}}{N_A}(-\Delta H_0)k_{pol}[M_i]_{pol}\right]
\]

+ \left[\frac{\tilde{n}_{NP}}{N_A}(-\Delta H_0)k_{eqw}[M_1]_{aq}\right] - U_jA_j(T_i - T_j) - Q\frac{dR}{dt}
\]

(30)

\[
C_{act} = \frac{R_{eq}}{R_1} = \frac{r_{x}(M_1)_{pol}/[B_1]_{pol} + 1}{r_{y}(M_1)_{pol}/[A_1]_{pol} + 1}
\]

(33)

\[
\beta = \frac{C_{act} - 1}{\sqrt{C_{act} - 1}} + \frac{4r_{x}C_{act}}{2r_{x}C_{act}}
\]

(34)

\[
\frac{d[R]}{dt} = -R_1\sum_{i=A,B}k_{pol}[I]_{pol} - R_1\sum_{i=A,B}k_{m}[I]_{pol} - \left[\frac{k_{eqw}N_{eq}}{V_{eq}}\sum_{n=1}^{\infty}R_n\right]R_1 + \left[\sum_{i=A,B}k_{m}[I]_{pol}\right]\sum_{n=1}^{\infty}R_n + \sum_{n=1}^{\infty}R_nR_1 + ab\alpha = 0
\]

(B1)
Emulsion polymerization model

\[\sum_{i=A,B} k_{pi}[l_{pol}] \sum_{n=1}^{\infty} n(n+1)^{k} R_{n} + \sum_{i=A,B} k_{pol}[l_{pol}] \sum_{n=1}^{\infty} n^{k} R_{n} + \frac{k_{br}}{N_{A,p}} \sum_{n=1}^{\infty} n^{k} R_{n} \]

\[k = 0 \Rightarrow \mu_1 = \frac{\text{abs} N_{A,p}}{k_{s}} \quad \text{(B10)}\]

\[k = 2 \Rightarrow \mu_2 = \frac{\sum_{i=A,B} k_{pi}[l_{pol}] N_{A,p}(\mu_{1} + 2\mu_{1}) + \text{[some expression]} N_{A,p} \mu_{1}}{\sum_{i=A,B} k_{pol}[l_{pol}] N_{A,p} + [k_{br} Q_{1}] + k_{s} \mu_{1}} \quad \text{(B12)}\]

**Nomenclature**

- \(a_{bs}\): rate of radical absorption into polymer particles (1/s)
- \(A\): vinyl acetate
- \(A_{s}\): heat transfer area (cm²)
- \(A_{p}\): total particle surface area (cm²)
- \(u_{s}\): area covered by 1 g mol of emulsifier (cm²/g mol)
- \(B\): butyl acrylate
- \(C_{na}\): instantaneous copolymer composition ratio
- \(C_{p,i,a}\): specific heat of reactor feeds streams (cal/(g K))
- \(C_{p,i,cool}\): specific heat of cooling fluid (cal/(g K))
- \(D_{p}\): diffusion coefficient in the polymer particles (cm²/s)
- \(D_{a}\): diffusion coefficient in the aqueous phase (cm²/s)
- \([E]_{con}\): concentration of emulsifier in the reactor (g/cm³)
- \([E]_{ads}\): emulsifier adsorbed on polymer particles (g/cm²)
- \([E]_{satur}\): emulsifier adsorbed on polymer particles at saturation (g/cm²)
- \([E]_{aq}\): concentration of emulsifier in the aqueous phase (g/cm³)
- \(f\): initiator efficiency
- \(f_{i}\): feed rate of monomer \(i\) to the reactor in (mol/s)
- \(f_{bs}\): efficiency of radical entry rate into micelles
- \(f_{ic}\): efficiency of radical entry rate into polymer particles
- \([I]\): concentration of initiator in the reactor (g/cm³)
- \(i\): amount of monomer \(i\) (A or B) in the reactor (mol)
- \(i_{0}\): amount of monomer \(i\) in the initial charge of the reactor (mol)
- \(l_{pol}\): amount of monomer \(i\) in polymer particles (mol)
- \([l]_{pol}\): concentration of monomer \(i\) in polymer particles (mol/cm³)
- \(l_{ads}\): critical length of radical (homogeneous nucleation)
- \(k_{ads}\): coefficient of emulsifier adsorption by polymer particles
- \(k_{w}\): radical entry rate into micelles (cm³/(mol s))
- \(k_{s}\): radical entry rate into polymer particles (cm³/(mol s))
- \(k_{br}\): average rate constant for chain transfer of radical type \(i\) in the polymer phase (cm³/mol s)
- \(k_{jt}\): rate constant for chain transfer of radical type \(i\) to monomer \(j\) in the polymer phase (cm³/(mol s))
- \(k_{brj}\): average rate constant for chain transfer to polymer in the polymer phase (cm³/(mol s))
- \(k_{brj}\): rate constant for chain transfer of radical type \(i\) to copolymer in the polymer phase (cm³/(mol s))
- \(k_{brj}\): rate constant for initiator decomposition (1/s)
- \(k_{p}\): partition coefficient of monomer \(i\) between aqueous phase and polymer phase
- \(k_{p}\): average rate constant for propagation of radical type \(i\) in the polymer phase (cm³/(mol s))
\(k_{pij}\) rate constant for propagation of radical type \(i\) in with a radical type \(j\) in the polymer phase (cm\(^3\)/[(mol s)]

\(k_{pi}\) average rate constant for propagation of radical type \(i\) in the aqueous phase (cm\(^3\)/[(mol s)]

\(k_t\) average rate constant for termination in the polymer phase (cm\(^3\)/[(mol s)]

\(k_{ta}\) average rate constant for termination in the aqueous phase (cm\(^3\)/[(mol s)]

\(k_{tif}\) rate constant for termination of radical type \(i\) with radical type \(j\) in the polymer phase (cm\(^3\)/[(mol s)]

\([M_i]\) concentration of monomer \(i\) (A or B) in the reactor (g/cm\(^3\))

\([M_i]_{aq}\) concentration of monomer \(i\) in the aqueous phase (g/cm\(^3\))

\([M_i]_{pol}\) concentration of monomer \(i\) in the polymer phase (g/cm\(^3\))

\(\bar{n}\) average number of radicals per polymer particle

\(N_A\) Avogadro’s number

\(N_{mic}\) number of micelles

\(N_p\) total particle number

\([P]\) concentration of polymer in the reactor (g/cm\(^3\))

\(P_{A,p}\) relative frequency of radicals presenting a monomeric unit of type A on its active end

\(P_{B,p}\) relative frequency of radicals presenting a monomeric unit of type B on its active end

\(PM_E\) molecular weight of the emulsifier (g/mol)

\(q_{in}\) inlet flow rate of the reactor (cm\(^3\)/s)

\(q_{out}\) outlet flow rate of the jacket (cm\(^3\)/s)

\(Q_{j}\) jacket heat loss to the surroundings (cal/s)

\(Q_{R}\) reactor heat loss to the surroundings (cal/s)

\(r_0\) reactivity ratio of monomer \(i\)

\(r_{ms}\) radius of a micelle (cm)

\(r_{ps}\) radius of a swollen polymer particle (cm)

\([R_{h}]_{aq}\) concentration of radicals with length \(h\) in the aqueous phase (mol/cm\(^3\))

\([R_{j,crit}]_{aq}\) concentration of radicals of length \(j_{crit}\) in the aqueous phase (mol/cm\(^3\))

\(R_{pi}\) polymerization rate of monomer \(i\) (mol/s)

\([R_{T}]_{aq}\) total concentration of radicals in the aqueous phase (mol/cm\(^3\))

\([R_{ent}]_{aq}\) concentration of radicals in the aqueous phase that can enter into a micelle or into a polymer particle (mol/cm\(^3\))

\(t\) time (s)

\(T_j\) jacket temperature (°C)

\(T_{in}\) jacket inlet temperature (°C)

\(T_r\) reactor temperature (°C)

\(T_{ref}\) reference temperature (°C)

\(U_j\) global heat transfer coefficient (cal/(s cm\(^2\) K))

\(V_{aq}\) volume of the aqueous phase (cm\(^3\))

\(V_{pol}\) volume of the polymer phase (cm\(^3\))

\(V_R\) volume of the reactor (cm\(^3\))

\([W]\) concentration of water in the reactor (g/cm\(^3\))

\(W_{f}\) amount of cooling fluid in the jacket (g)

\(w_{j,f}\) weight fraction of component \(j\) in the reactor inlet feed stream

\(x_g\) global monomer conversion

\(y_A\) copolymer composition (molar fraction of VA in the copolymer)

\(z\) minimum length of radical for radical entry into micelles and polymer particles

**Greek letters**

\(\beta\) amount of emulsifier per micelle (g)

\(\Delta H_{pol}\) heat of polymerization of monomer \(i\) (cal/g)

\(\theta_{ad}\) fraction of polymer surface area covered by the emulsifier

**Optimization procedure**

\(A\) number of random values of manipulated variables

\(F\) objective function
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**Greek letters**

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