- FULL INITIATION $-\!-\!-$

Activation:
$$Q = \frac{h\nu, k_l}{k_{-l}}$$
 ${}^3Q = \frac{k_l}{k_{-l}} \approx 1e8 - 1e10 \quad c^{-1}$

Quenching:

enching:
$${}^{3}Q+DH \xrightarrow{k_{diff}} [{}^{3}Q,DH] \xrightarrow{k_{qE}} [Q^{\bullet-},DH^{\bullet+}]_{s} \xrightarrow{k_{H+}} [QH^{\bullet},D^{\bullet}]_{s} \xrightarrow{k_{diff}} QH^{\bullet}+D^{\bullet} \xrightarrow{k_{qE}} \approx 1e8 - 1e10 \quad M^{-1}c^{-1}$$

$$\begin{array}{c} \mathbf{k_{qE}} \approx 1e8 - 1e10 \quad M^{-1}c^{-1} \\ \mathbf{k_{-qE}} \approx 1e8 - 1e10 \quad c^{-1} \\ \mathbf{k_{H+}} \approx 1e8 - 1e10 \quad c^{-1} \\ \mathbf{k_{diff}} \approx 1e8 - 1e9 \quad c^{-1} \end{array}$$

$$^3Q+QHH$$
 $\xrightarrow{k_{qH}}$ $^2QH^{\bullet}$ $\xrightarrow{k_{dQ}}$ ^2Q+QHH $\xrightarrow{k_{\mathbf{qH}}}$ $\approx 1e5 - 1e9$ $\xrightarrow{M^{-1}c^{-1}}$ $\xrightarrow{k_{\mathbf{redQ}}}$ $\approx 1e3$ $\xrightarrow{M^{-1}c^{-1}}$ $\xrightarrow{k_{\mathbf{dQ}}}$ $\approx 1e9$ $\xrightarrow{M^{-1}c^{-1}}$

$$^3Q+\ QHD \xrightarrow{k_{qQD}} \ QH^{\bullet}+\ QD^{\bullet} \ \underline{\mathbf{k_{qQD}}} \approx ? \ M^{-1}c^{-1}$$

dicals:
$$QH^{\bullet} + D^{\bullet} \xrightarrow{k_r} QHD \xrightarrow{k_p} QHH + \text{N-prod} \xrightarrow{\mathbf{k_r}} \approx 1\text{e}7 - 1\text{e}9 \xrightarrow{M^{-1}c^{-1}} \mathbf{k_p} \approx 1\text{e}-5 - 1\text{e}-3 \xrightarrow{c^{-1}}$$

$$2D^{\bullet} \xrightarrow{k_{rD-rec}} \text{D-D} \qquad \qquad \mathbf{k_{rD-rec}} \approx 1e10 \quad M^{-1}c^{-1}$$

$$2D^{\bullet} \xrightarrow{k_{rD-dis}} \text{DH + N-prod} \xrightarrow{\mathbf{k_{rD-dis}}} \approx 1e9 \quad M^{-1}c^{-1}$$

$$Q+$$
 D^{\bullet} $\xrightarrow{k_D}$ QD^{\bullet} $\xrightarrow{k_D}$ $\approx ?(1)$ $M^{-1}c^{-1}$ $\approx (0.05)$ c^{-1}

Photolysis: ${}^{3}Q \xrightarrow{k_{Ph}} \text{prod} k_{Ph} \approx 1\text{e-}4 - 1\text{e-}3 c^{-1}$

——— SIMPLE SYSTEM

Activation: $Q \xrightarrow{h\nu, k_l} {}^3Q \qquad \mathbf{k_l} \approx 1e8 - 1e10 \quad c^{-1}$

Quenching:
$${}^3Q+DH \xrightarrow{k_{diff}} QH^{\bullet}+D^{\bullet} \xrightarrow{k_r} QHD \xrightarrow{k_p} QHH+N-prod \begin{pmatrix} \mathbf{k_{diff}} & \approx 1e8 - 1e10 & M^{-1}c^{-1} \\ \mathbf{k_r} & \approx 1e7 - 1e9 & M^{-1}c^{-1} \\ \mathbf{k_p} & \approx 1e-5 - 1e-3 & M^{-1}c^{-1} \end{pmatrix}$$

$$2QH^{\bullet} \xrightarrow{k_{dQ}} Q + QHH \quad \mathbf{k_{dQ}} \approx 1e9 \quad M^{-1}c^{-1}$$

$$2D^{\bullet} \xrightarrow{k_{TD-rec}} \text{D-D} \qquad \qquad \mathbf{k_{rD-rec}} \approx 1e10 \quad M^{-1}c^{-1}$$

$$2D^{\bullet} \xrightarrow{k_{TD-dis}} \text{DH + N-prod} \xrightarrow{\mathbf{k_{rD-dis}}} \approx 1e9 \quad M^{-1}c^{-1}$$

——— FULL POLIMERIZATION —

Propagation:	$D^{\bullet} + \mathbf{M} \xrightarrow{k_{init}} \sim P_{1}^{\bullet}$ $\sim P_{n}^{\bullet} + \mathbf{M} \xrightarrow{k_{prop}} \sim P_{n+1}^{\bullet}$ $M^{\bullet} + \mathbf{M} \xrightarrow{k_{prop}} \sim P_{2}^{\bullet}$	$egin{aligned} k_{ ext{init}} \ k_{ ext{prop}} \end{aligned}$	$\approx 1e2 - 1e4$ $\approx 1e2 - 1e4$	
Transfer:	$\sim P_n^{\bullet} + \operatorname{Sol} \xrightarrow{k_{trans-sol}} Sol^{\bullet} + \sim P_n$	$\rm k_{trans-sol}$	≈ 5	$M^{-1}c^{-1}$
	$\sim P_n^{\bullet} + M \xrightarrow{k_{trans} - m} M^{\bullet} + \sim P_n$	$k_{\rm trans-m}$	\approx 1e-3 - 1	$M^{-1}c^{-1}$
	$\sim P_n^{\bullet} + Z \xrightarrow{k_{inh}} Z^{\bullet} + \sim P_n$	$\mathbf{k_{inh}}$	\approx 1e2 - 1e3	$M^{-1}c^{-1}$
Termination:	$\sim P_n^{\bullet} \xrightarrow{k_{ter-lin}} \sim P_n$	$\mathbf{k_{ter-l}}$	$\approx 1\mathrm{e}7$	c^{-1}
	$\sim P_n^{\bullet} + \sim P_k^{\bullet} \xrightarrow{k_{ter-rec}} \sim P_n - P_k \sim$		\approx 1e7 - 1e8	
	$\sim P_n^{\bullet} + \sim P_k^{\bullet} \xrightarrow{k_{ter-disp}} \sim P_{n-1} = CH_2 + \sim P_{k-1} - CH_3$	$k_{\rm ter-disp}$	\approx 1e7 - 1e8	$M^{-1}c^{-1}$

————— SIMPLE POLIMERIZATION —

Initiation: $D^{\bullet} + M \xrightarrow{k_{init}} \sim P^{\bullet}$ $\mathbf{k_{init}}$ $\approx 1e2 - 1e4 M^{-1}c^{-1}$ Propagation: $\sim P^{\bullet} + M \xrightarrow{k_{prop}} \sim P^{\bullet}$ $\mathbf{k_{prop}}$ $\approx 1e2 - 1e4 M^{-1}c^{-1}$ Inhibition: $\sim P^{\bullet} + Z \xrightarrow{k_{inh}} Z^{\bullet} + \sim P$ $\mathbf{k_{inh}}$ $\approx 1e2 - 1e3 M^{-1}c^{-1}$ Termination: $\sim P^{\bullet} \xrightarrow{k_{ter-lin}} \sim P$ $\mathbf{k_{ter-li}}$ $\approx 1e7 M^{-1}c^{-1}$ $\sim P^{\bullet} + \sim P^{\bullet} \xrightarrow{k_{ter-rec}} \sim P$ $\mathbf{k_{ter-rec}}$ $\approx 1e7 - 1e8 M^{-1}c^{-1}$