

## Supplementary information for: Monodisperse Polyethylene Glycol Diacrylate Hydrogel Microsphere Formation by Oxygen-Controlled Photopolymerization in a Microfluidic Device

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### PARAMETERS FOR MODELING OXYGEN RADICAL SCAVENGING

Parameter	Description	Value	Units	Reference
$k_p$	rate constant of propagation for acrylate polymers	25	$\frac{m^3}{mol \cdot s}$	1
$k_{O_2}$	rate constant of the radical scavenging	$5 \times 10^5$	$\frac{m^3}{mol \cdot s}$	2
$k_t$	rate constant for termination of radical species	$2.5 \times 10^3$	$\frac{m^3}{mol \cdot s}$	1
$C_{O_2}$	oxygen saturation concentration in the droplet	1	$\frac{mol}{m^3}$	2
$D_{O_2}$	oxygen diffusivity in the droplet	$1 \times 10^{-10}$	$\frac{m^2}{s}$	3,4
$\varphi$	quantum yield of radical	0.6		1,5
$\varepsilon$	molar absorptivity of protons	20	$\frac{m^2}{mol}$	5
$\lambda$	wavelength number	350	nm	lens filter
$r$	droplet radius	5-50	$\mu m$	varied
$I$	UV light intensity	5-50	$\frac{mW}{cm^2}$	varied
$C_{PEGDA-700}$	monomer concentration (10-40% vol.)	160-640	$\frac{mol}{m^3}$	varied
$C_{initiator}$	initiator concentration (1-6% vol.)	66-395	$\frac{mol}{m^3}$	varied
$\xi$	fraction of converted monomer	0-1		modeled
$N_A$	Avogadro number (particles per mole)	$6.022 \times 10^{23}$	$\frac{1}{mol}$	constant
$h$	Planck's constant	$6.626 \times 10^{-34}$	$\frac{m^2}{kg \cdot s}$	constant
$c$	speed of light	299,792,458	$\frac{m}{s}$	constant

## References:

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