

SUPPORTING INFORMATION

Alkoxyamine-functionalized latex nanoparticles through RAFT polymerization-induced self-assembly in water.

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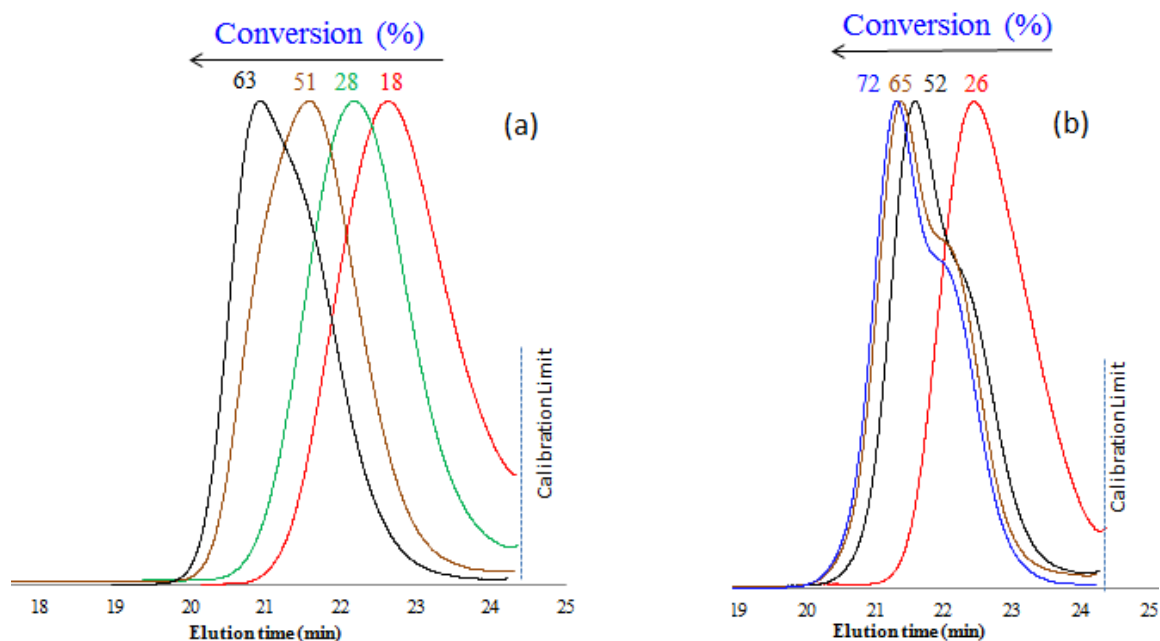


Figure S1. SEC traces of PAA-*I* synthesized through RAFT polymerization mediated by dialkoxyamine-trithiocarbonate *I*; (a) in dioxane (PAA-*I* 1), (b) in water (PAA-*I* 6).

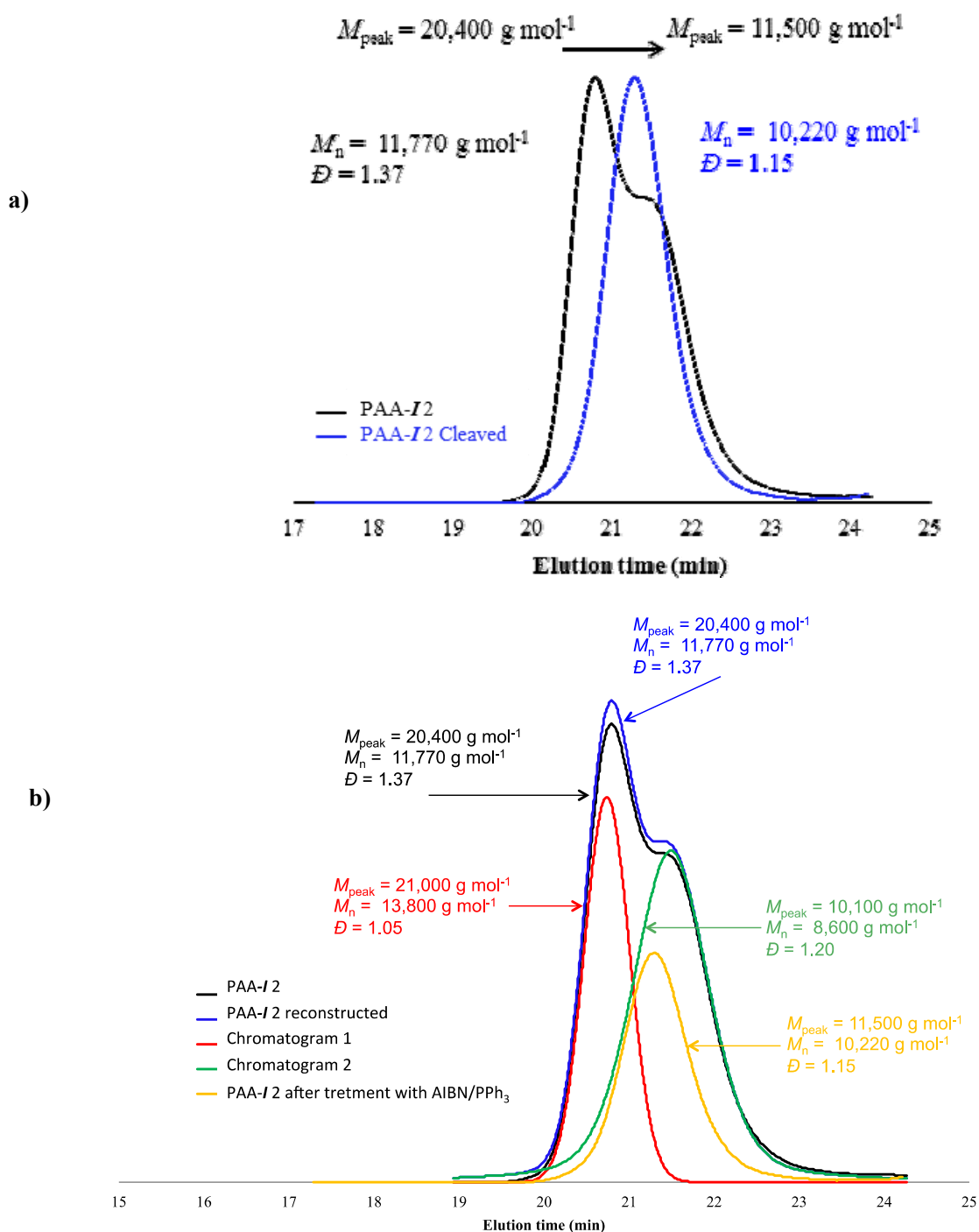


Figure S2. a) SEC traces of PAA-I 2 synthesized through RAFT polymerization mediated by dialkoxyamine-trithiocarbonate **I** (black) and the corresponding cleaved product (blue). b) Deconvolution of the chromatogram of PAA-I 2 (black) into two chromatograms (green and red) using Peakfit v14 software, chromatogram of the cleaved product (orange) and reconstructed chromatogram of PAA-I 2 after deconvolution (blue).

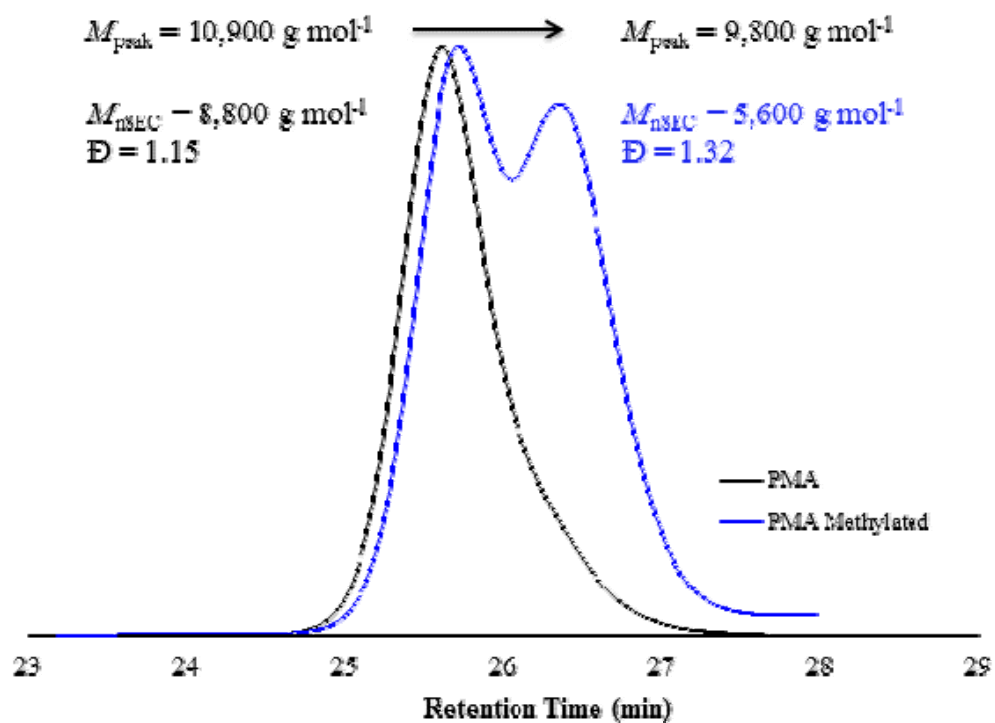
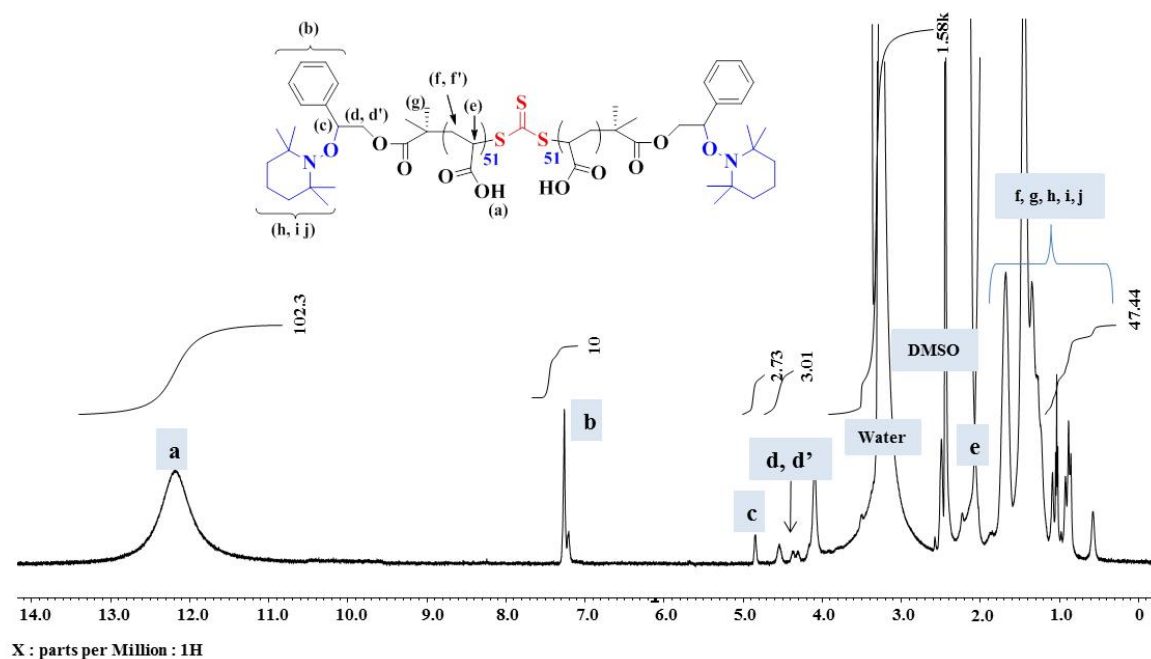


Figure S3. SEC traces of PMA-*I* synthesized through RAFT polymerization mediated by dialkoxamine-trithiocarbonate *I* (black) and the corresponding methylated product (blue).



$$M_{n\text{NMR}} = 102 \times 72.06 \text{ (MM of AA)} + 800 \text{ (MM of I)} = 8,170 \text{ g mol}^{-1}$$

Figure S4. ¹H NMR corresponding to sample PAA-I 6 synthesized through RAFT polymerization mediated by the dialkoxyamine-trithiocarbonate, **I**. The aromatic protons were integrated to 10 which correspond to two end-alkoxyamine groups per chain.

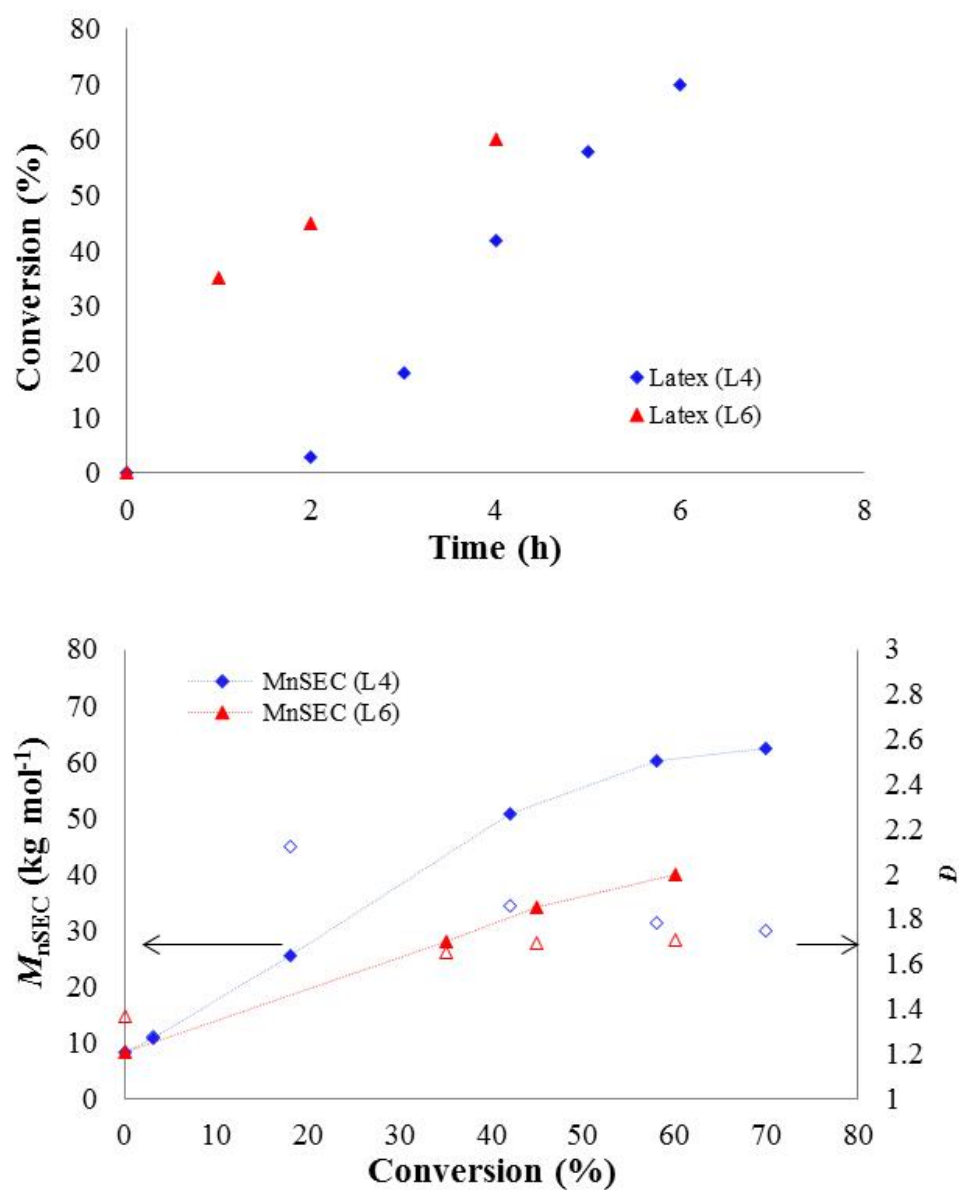


Figure S5. (a) Conversion versus time and (b) M_{nSEC} versus conversion corresponding to styrene (L4) or *n*-butyl acrylate (L6) emulsion polymerization in the presence of PAA-I 6. Reactions conditions are described in Table 2 and in the experimental part.

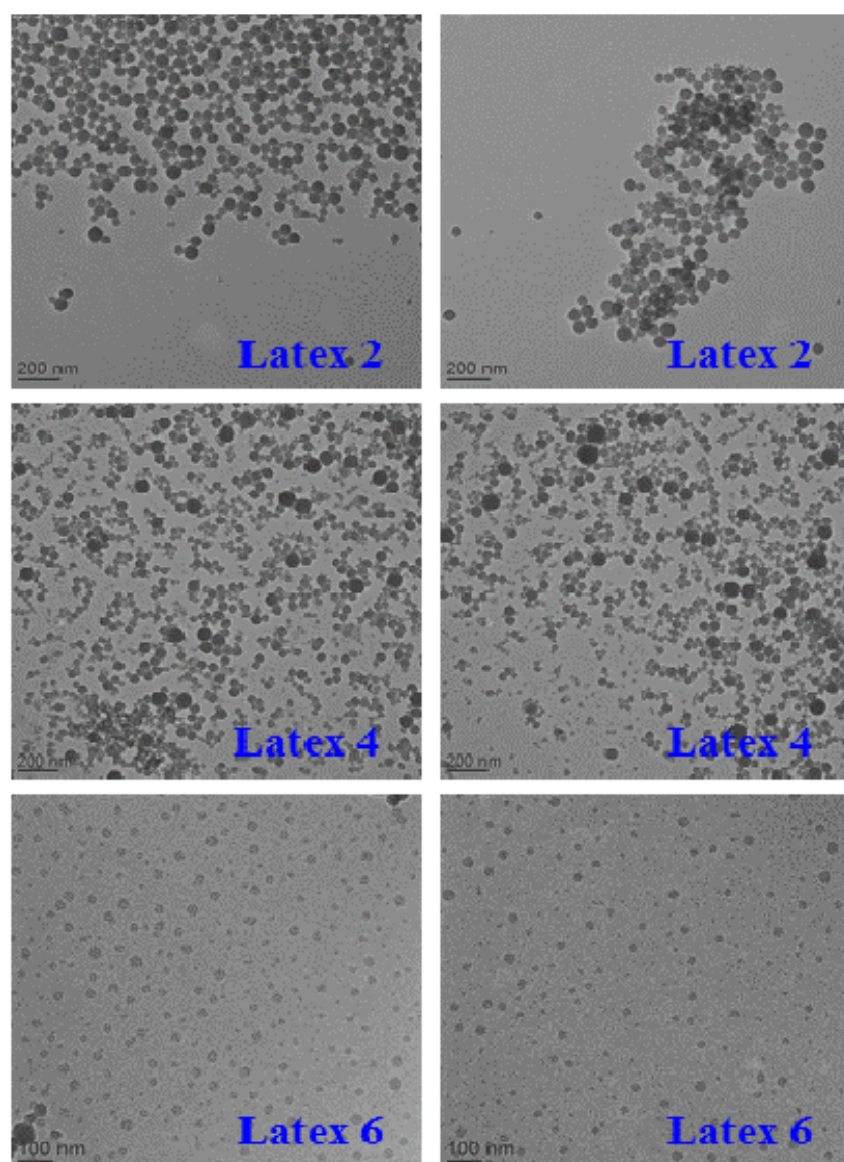


Figure S6. TEM images of latexes L2, L4, and Cryo-TEM images of latexes L6

Table S1. ^aMonomer conversion was determined gravimetrically (L6 L-NMP, and L2) and by dialysis (entry : Latex NMP-1, 2, 3) respectively; ^bNumber-average molar mass and dispersity were determined by SEC in THF before methylation process; ^c D_h were obtained by dynamic light scattering (DLS). ^d D_w/D_n were obtained by transmission electron microscopy. T = 130 °C, and P = 3 bars for L-NMP, Latex NMP-1, 2 and 3.

Entry	Macro-CTA/M	<i>t</i> (h)	DP _{n,th}	Conv ^a (%)	M_{nSEC}^b (g mol ⁻¹)	$\bar{D}^b$	D_h^c	Poly ^c	D_n	D_w/D_h^d
L6	PAA- <i>I</i> 6/BA	8	550	60	39,700	1.7	34	0.19	30	1.21
L-NMP	L6/S	24	500	25	45,000	1.8	120	0.27	95	1.35
L2	PAA- <i>I</i> 6/S	8	500	60	39,500	1.6	50	0.19	43	1.11
Latex NMP-1	L2	24	500	20	NA	NA	72	0.26	60	1.12
Latex NMP-2	L2	36	500	30	NA	NA	45 and 230	0.53	NA	NA
Latex NMP-3	L2	24	1000	40	NA	NA	62 and 195	0.48	NA	NA

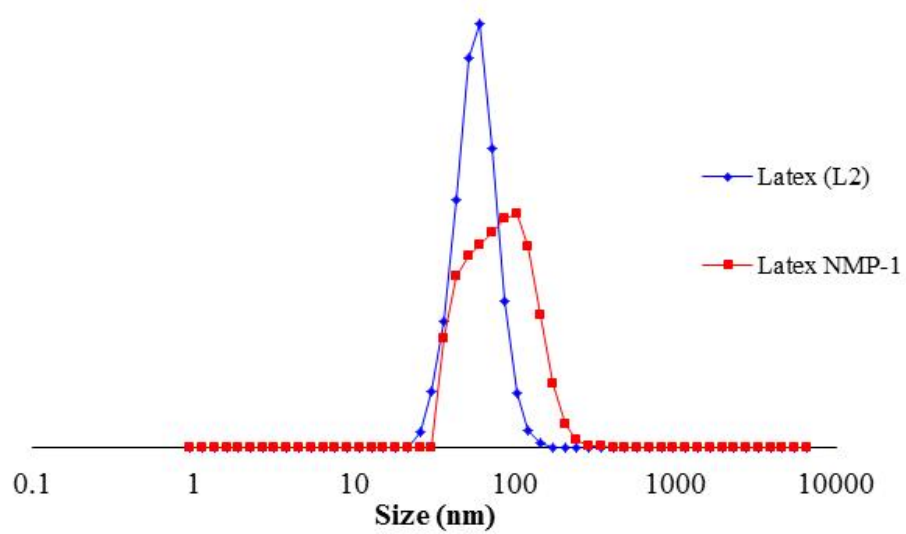


Figure S7. Particle size distribution for latex (L2) (blue) and Latex NMP-1 (red)