

Formation of Monodisperse Polymer@SiO₂ Core-Shell Nanoparticles via Polymerization in Emulsions Stabilized by Amphiphilic Silica Precursor Polymers: HLB Dictates the Reaction Mechanism and Particle Size

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SUPPORTING INFORMATION

Table S1. Recipes for synthesis of PEGx-PEOS.

Sample	TEOS, mol	Acetic mol	anhydride, mol	Tetraethyl orthotitanate, mol	PEG, mol
PEG3-PEOS	2.0	1.8		0.006	0.10 (34 ml)
PEG5-PEOS	2.0	1.8		0.006	0.17 (57 ml)
PEG7-PEOS	2.0	1.8		0.006	0.24 (80 ml)
PEG10-PEOS	2.0	1.8		0.006	0.35 (114 ml)
PEG15-PEOS	2.0	1.8		0.006	0.52 (171 ml)

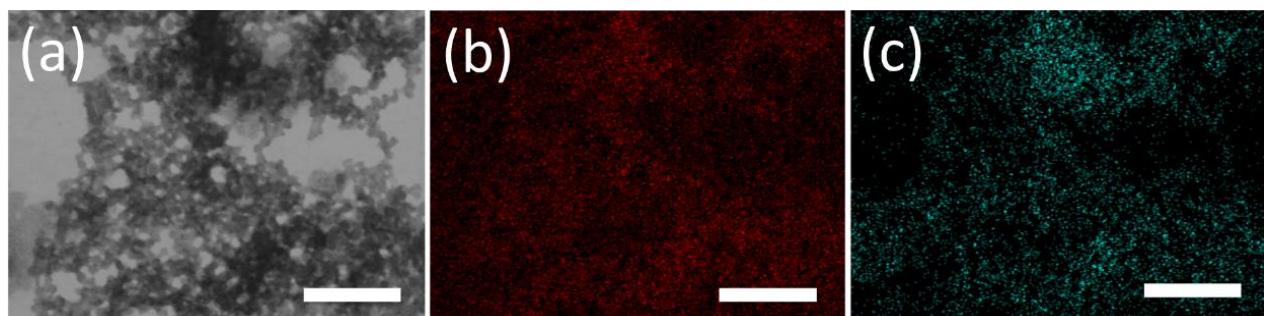


Figure S1. EDX-STEM micrographs of polymer particles synthesized by polymerization of styrene/PEG15-PEOS-in-water emulsion (run 12 in Table 1). (a) STEM image, (b) carbon atom mapping, (c) silicon atom mapping. Scale bars represent 250 nm.



Figure S2. Photos of polymer dispersions obtained via polymerization of styrene/PEG5-PEOS-in-water emulsions with different weight fraction of PEG5-PEOS in the oil phase.

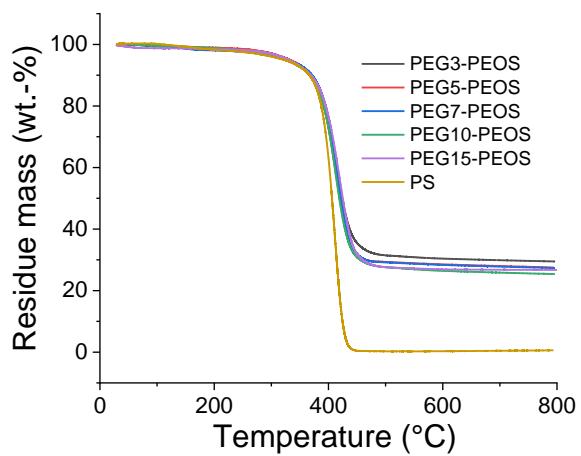


Figure S3. TGA curves of PS@SiO₂ core-shell particles synthesized via polymerization in styrene/PEGx-PEOS-in-water emulsions. PEG3-PEOS (run 1 in Table 1); PEG5-PEOS (run 4 in Table 1); PEG7-PEOS (run 7 in Table 1); PEG10-PEOS (run 9 in Table 1) and PEG15-PEOS (run 12 in Table 1).