APPENDIX

Viscosity Data Sheet

1. HPC (M_w=100,000) in water at 30 ^{0}C

C_p (g/100g)	Viscosity (η) (centistokes)	Specific Viscosity (η_{sp})	Reduced Viscosity (η_R) (100g/g)
0.06	0.8650	0.0619	1.0312
0.12	0.9441	0.1589	1.3239
0.24	1.1281	0.3848	1.6033
0.36	1.2638	0.5514	1.5316
0.45	1.4771	0.8132	1.8071
0.60	1.5944	0.9572	1.5954
1.00	2.1095	1.5895	1.5895
1.20	2.8465	2.4942	2.0785
1.50	3.7712	3.6293	2.4195

2. HPC (M_w=370,000) in water at 30 ^{0}C

C_p (g/100g)	Viscosity (η) (centistokes)	Specific Viscosity (η_{sp})	Reduced Viscosity (η_R) (100g/g)
0.01	0.8484	0.0414	4.1438
0.02	0.8834	0.0844	4.2182
0.03	0.9250	0.1355	4.5169
0.09	1.2016	0.4750	5.3367
0.15	1.5836	0.9439	6.2925
0.30	2.7639	2.3928	8.0294

3. HPC (M_w=1,000,000) in water at 30 ^{0}C

C_p (g/100g)	Viscosity (η) (centistokes)	Specific Viscosity (η_{sp})	Reduced Viscosity (η_R) (100g/g)
0.02	0.9029	0.1083	5.4146
0.04	1.0260	0.2594	6.4852
0.06	1.1752	0.4426	7.3761
0.10	1.4879	0.8264	8.2644
0.20	2.6073	2.2006	11.0031
0.40	6.7312	7.0396	17.5990

DLS Data Sheet

4. HPC (M_w=100,000) in water at 30 ^{0}C.

C_p (%wt)	T_q (microsec)	D (cm^2/sec)	R_h (nm)
0.02	114.4	1.65E-07	16.9
0.03	116.5	1.62E-07	17.2
0.09	102.2	1.85E-07	15.1
0.15	123.3	1.53E-07	18.2
0.30	114.1	1.66E-07	16.8

5. HPC(M_w= 370,000) in water at 30 ^{0}C.

C_p (%wt)	T_q (microsec)	D (cm^2/sec)	R_h (nm)
0.05	190.4	9.93E-08	28.0
0.12	191.7	9.86E-08	28.2
0.24	189.4	9.98E-08	27.9
0.36	189.4	9.98E-08	27.9
0.45	191.8	9.95E-08	28.2

6. HPC (M_w=1,000,000) in water at 30^{0}C.

C_p (%wt)	T_q (microsec)	D (cm^2/sec)	R_h (nm)
0.02	257.4	7.34E-08	37.9
0.04	245.0	7.56E-0.8	36.8
0.06	246.9	7.65E-08	36.4
0.10	250.7	7.54E-08	36.9
0.40	276.5	6.84E-08	40.7

DLS data sheet

7. Polystyrene latex diameter 94 nm

C_{latex} (10^{-4}%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
5	359.3	5.26E-08	105.8
10	359.2	5.26E-08	105.8
20	351.9	5.37E-08	103.6
40	321.9	5.87E-08	94.8

8. Polystyrene latex diameter 302 nm

C_{latex} (10^{-4}%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
5	1024.5	1.85E-08	300.8
8	994.6	1.90E-08	292.4
20	949.6	1.99E-08	279.6
40	908.5	2.08E-08	267.5

9. Polystyrene latex diameter 460 nm

C_{latex} (10^{-4}%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
3.9	1569.8	1.21E-08	459.9
10	1549.0	1.22E-08	456.1
20	1476.4	1.28E-08	434.7
40	1219.21	1.55E-08	359.0

DLS data sheet

10. 0.001 % wt of latex diameter 94 nm in 0.4 % wt HPC molecular weight 100,000 g/mole

$C_{Triton\ X\text{-}100}$ (%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
0.0050	519.2	3.64E-08	120.7
0.0099	432.7	4.37E-08	100.6
0.0150	422.3	4.47E-08	98.2
0.0199	418.0	4.52E-08	97.2
0.0497	393.3	4.80E-08	94.4
0.1000	389.7	4.85E-08	90.6

11. 0.001 % wt of latex diameter 302 nm in 0.4 % wt HPC molecular weight 100,000 g/mole

$C_{Triton\ X\text{-}100}$ (%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
0.0050	1967.4	9.61E-09	360.9
0.0100	1759.6	1.07E-08	322.7
0.0198	1696.0	1.11E-08	311.1
0.0495	1708.8	1.11E-08	313.4
0.0734	1698.6	1.11E-08	311.5
0.0999	1722.7	1.10E-08	316.0
0.1498	1717.4	1.10E-08	315.0
0.1574	1718.5	1.10E-08	315.2

12. 0.001 % wt of latex diameter 460 nm in 0.4 % wt HPC molecular weight 100,000 g/mole

$C_{Triton\ X\text{-}100}$ (%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
0.0000	3151.0	6.00E-0.9	577.9
0.0048	3047.1	6.20E-09	558.9
0.0090	2812.6	6.72E-09	515.9
0.0200	2591.0	7.29E-09	475.2
0.0497	2576.6	7.33E-09	472.6
0.0751	2609.9	7.24E-09	478.7
0.0996	2607.3	7.25E-09	478.2
0.1494	2634.7	7.17E-09	483.2
0.1999	2630.4	7.18E-09	482.5

DLS data sheet

13. 0.001 % wt of latex diameter 94 nm in 0.2 % wt HPC molecular weight 100,000 g/mole

$C_{Triton\ X\text{-}100}$ (%wt)	T_q (microsec)	D (cm^2/sec)	Diameter (nm)
0.0000	658.4	2.87E-08	128.8
0.0050	519.2	3.64E-08	101.6
0.0099	432.7	4.37E-08	84.7
0.0150	422.3	4.47E-08	82.6
0.0199	418.0	4.52E-08	81.8
0.0298	403.0	4.69E-08	78.8
0.0497	393.3	4.80E-08	76.9
0.1000	389.7	4.85E-08	76.2

14. 0.001 % wt of latex diameter 94 nm in 0.2 % wt HPC molecular weight 370,000 g/mole

$C_{Triton\ X\text{-}100}$ (%wt)	$T_{q(fast)}$ (microsec)	$T_{q(slow)}$ (microsec)	$D_{(fast)}$ (cm^2/sec)	$D_{(slow)}$ (cm^2/sec)	$Dia_{(fast)}$ (nm)	$Dia_{(slow)}$ (nm)
0.0000	610.0	1250.0	2.98E-08	1.51E-08	59.7	122.3
0.0050	595.0	1147.3	3.18E-08	1.65E-08	58.2	112.2
0.0099	405.3	846.0	4.66E-08	2.23E-08	39.6	82.8
0.0151	393.7	743.7	4.80E-08	2.54E-08	38.5	72.7
0.0199	388.1	701.0	4.87E-08	2.70E-08	38.0	68.6
0.0298	383.3	709.7	4.93E-08	2.66E-08	37.5	69.4
0.0472	332.2	707.9	5.69E-08	2.67E-08	32.5	69.2
0.0983	302.9	740.8	6.24E-08	2.55E-08	29.6	72.5

DLS data sheet

15. 0.001 % wt of latex diameter 94 nm in 0.2 % wt HPC molecular weight 1,000,000 g/mole

$C_{Triton\ X\text{-}100}$ (%wt)	$T_{q(fast)}$ (microsec)	$T_{q(slow)}$ (microsec)	$D_{(fast)}$ (cm^2/sec)	$D_{(slow)}$ (cm^2/sec)	$Dia_{1(fast)}$ (nm)	$Dia_{2(slow)}$ (nm)
0.0000	650.0	1250.0	3.20E-08	1.51E-08	63.6	122.3
0.0048	595.0	1147.3	3.18E-08	1.65E-08	58.2	112.2
0.0099	405.3	846.0	4.66E-08	2.23E-08	39.6	82.8
0.0150	393.7	743.7	4.80E-08	2.54E-08	38.5	72.7
0.0199	388.1	701.0	4.87E-08	2.70E-08	38.0	68.6
0.0300	383.3	709.7	4.93E-08	2.66E-08	37.5	69.4
0.0498	332.2	707.9	5.69E-08	2.67E-08	32.5	69.2
0.0985	302.9	740.8	6.24E-08	2.55E-08	29.6	72.5

DLS data sheet

16. Latex 460 nm in HPC molecular weight 100,000, varying Cp, 0% Triton X-100

C_p (%wt)	T_q (microsec)	D (cm^2/sec)
0.0500	2000.7	9.45E-09
0.2000	2592.4	7.29E-09
0.6000	4162.4	4.54E-09
1.0000	6034.2	3.13E-09
1.5170	7665.9	2.47E-09
1.5550	9103.8	2.08E-09

17. Latex 460 nm in HPC molecular weight 370,000, varying Cp, 0% Triton X-100

C_p (%wt)	T_q (microsec)	D (cm^2/sec)
0.0099	2096.6	9.01E-09
0.0200	2437.3	7.75E-09
0.0400	2666.0	7.09E-09
0.1001	3513.2	5.38E-09
0.3001	7434.1	2.54E-09
0.3997	12583.6	1.50E-09
0.5988	13149.5	1.44E-09

18. Latex 460 nm in HPC molecular weight 1,000,000, varying Cp, 0 % Triton X-100

C_p (%wt)	T_q (microsec)	D (cm^2/sec)
0.0100	2274.2	8.31E-09
0.0500	3030.9	6.24E-09
0.1000	4122.6	4.58E-09
0.1170	4375.0	4.32E-09
0.1250	5102.2	3.70E-09
0.2000	7207.9	2.62E-09

DLS data sheet

19. Latex 460 nm in HPC molecular weight 100,000, varying C_p, 0.1 % Triton x-100

C_p (%wt)	T_q (microsec)	D (cm^2/sec)
0.05	1894.9	9.97E-09
0.10	1905.0	9.92E-09
0.21	2213.7	8.54E-09
0.40	2621.8	7.21E-09
0.60	3382.3	5.59E-09
1.20	6388.5	2.96E-09

20. Latex 460 nm in HPC molecular weight 370,000, varyingC_p 0.1 % Triton x-100

C_p (%wt)	T_q (microsec)	D (cm^2/sec)
0.02	1858.0	1.02E-08
0.04	2001.8	9.44E-09
0.10	2512.3	7.52E-09
0.30	5969.3	3.17E-09
0.40	11269.0	1.68E-09

21. Latex 460 nm in HPC molecular weight 1,000,000, varying C_p 0.1 % Triton x-100

C_p (%wt)	T_q (microsec)	D (cm^2/sec)
0.01	1842.2	1.03E-08
0.04	2117.3	8.93E-09
0.06	2284.1	8.27E-09
0.11	2851.9	6.63E-09
0.15	3522.1	5.37E-09
0.19	4062.7	4.65E-09
0.30	8631.2	2.19E-09
0.40	13703.7	1.38E-09

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