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APPENDICES

Appendix A: Absorbance Data of UV-VIS Spectrophotometric Measurement.

Table A-1 Absorbance value at different NH_3 concentration. Composition of microemulsions: 0.1901 M DP6, H_2O:TEOS= 7.67:1 and 0.1494 M TEOS in heptane.

$[NH_3]$ = 0.0156 M		$[NH_3]$ = 0.0521 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0060	0.00	0.0054
2.25	0.0067	2.28	0.0065
6.00	0.0091	6.08	0.0125
10.33	0.0095	10.42	0.0185
25.88	0.0177	25.92	0.0341
33.47	0.0200	33.50	0.0421
49.33	0.0253	49.37	0.0497
58.55	0.0297	58.58	0.0552
75.17	0.0341	74.87	0.0645
101.08	0.0445	101.17	0.0721
131.17	0.0512	131.20	0.0754

$[NH_3]$ = 0.0781 M		$[NH_3]$ = 0.1249 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0059	0.00	0.0030
2.28	0.0062	2.33	0.0079
6.08	0.0147	6.13	0.0214
10.42	0.0224	10.45	0.0332
25.92	0.0478	26.00	0.0663
33.50	0.0573	33.53	0.0750
49.37	0.0699	49.42	0.0832
58.58	0.0786	58.58	0.0868
74.87	0.0811	74.88	0.0935
101.17	0.0891	101.18	0.0999
131.20	0.0918	131.23	0.1127

Table A-2 Absorbance value at different surfactant concentration. Composition of microemulsions: 0.0156 M NH_3, H_2O:TEOS= 767:1 and 0.1494 M TEOS in heptane.

[DP6] = 0.1901 M		[DP6] = 0.2535 M		[DP6] = 0.3169 M	
time (hr)	absorbance	time (hr)	absorbance	time (hr)	absorbance
0.00	0.0036	0.00	0.0036	0.00	0.0036
2.87	0.0092	2.97	0.0085	3.00	0.0068
5.50	0.0103	5.55	0.0104	5.55	0.0080
11.50	0.0124	11.55	0.0115	11.58	0.0095
24.60	0.0162	24.68	0.0142	24.80	0.0128
35.75	0.0195	35.88	0.0178	35.92	0.0159
50.33	0.0235	50.43	0.0216	50.50	0.0194
59.58	0.0265	59.63	0.0258	59.65	0.0243

Table A-3 Absorbance value at different H_2O:TEOS molar Ratio. Composition of microemulsions: 0.1901 M DP6, 0.0156 M NH_3 and 0.1494 M TEOS in heptane.

H_2O:TEOS = 2.66		H_2O:TEOS = 4.89		H_2O:TEOS = 7.67	
time (hr)	absorbance	time (hr)	absorbance	time (hr)	absorbance
0.00	0.0023	0.00	0.0023	0.00	0.0031
2.42	0.0037	2.47	0.0050	2.50	0.0056
6.28	0.0155	6.33	0.0100	6.42	0.0139
10.58	0.0270	10.68	0.0228	10.78	0.0216
26.03	0.0765	26.08	0.0533	26.13	0.0497
33.55	0.1605	33.58	0.0604	33.58	0.0572
49.50	1.1735	49.50	0.0799	49.53	0.0691
58.53	1.9011	58.55	0.0881	58.57	0.0762
74.83	2.0691	74.85	0.0995	74.88	0.0810
101.17	2.2200	101.17	0.1106	101.17	0.0880
131.22	2.2584	131.23	0.1179	131.23	0.0898

Table A-4 Absorbance value at different butanol concentration. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, H_2O:TEOS=7.67:1, and 0.1494 M TEOS in heptane.

[butanol] = 0 M		[butanol] = 0.0637 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0059	0.00	0.0040
2.28	0.0062	2.38	0.0057
6.08	0.0111	6.20	0.0173
10.42	0.0224	10.50	0.0287
25.92	0.0478	26.00	0.0635
33.50	0.0573	33.50	0.0767
49.37	0.0699	49.45	0.0936
58.58	0.0786	58.55	0.1055
74.87	0.0811	74.83	0.1092
101.17	0.0891	101.17	0.1199
131.20	0.0918	131.22	0.1228

[butanol] = 0.1594 M		[butanol] = 0.2550 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0058	0.00	0.0055
2.38	0.0085	2.40	0.0078
6.22	0.0246	6.27	0.0375
10.58	0.0411	10.60	0.0682
26.05	0.1011	25.98	0.1515
33.47	0.1184	33.52	0.1751
49.42	0.1421	49.47	0.2104
58.58	0.1535	58.52	0.2227
74.87	0.1649	74.83	0.2314
101.17	0.1800	101.15	0.2473
131.25	0.1840	131.20	0.2505

Table A-5 Absorbance value at different octanol concentration. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, H_2O:TEOS=7.67:1, and 0.1494 M TEOS in heptane.

[octanol] = 0 M		[octanol] = 0.0637 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0059	0.00	0.0040
2.28	0.0062	2.25	0.0055
6.08	0.0111	6.05	0.0116
10.42	0.0224	10.38	0.0176
25.92	0.0478	25.88	0.0376
33.50	0.0573	33.43	0.0433
49.37	0.0699	49.33	0.0533
58.58	0.0786	58.47	0.0587
74.87	0.0811	74.77	0.0625
101.17	0.0891	103.08	0.0689
131.20	0.0918	131.13	0.0700

[octanol] = 0.1594 M		[octanol] = 0.2550 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0041	0.00	0.0041
2.30	0.0053	2.33	0.0045
6.08	0.0114	6.07	0.0108
10.42	0.0154	10.47	0.0180
25.92	0.0346	25.95	0.0362
33.47	0.0401	33.50	0.0414
49.37	0.0467	49.42	0.0473
58.50	0.0539	58.50	0.0516
74.80	0.0545	74.80	0.0524
103.10	0.0565	103.13	0.0547
131.17	0.0568	131.35	0.0557

Table A-6 Absorbance value at different dodecanol concentration. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, H_2O:TEOS=7.67:1, and 0.1494 M TEOS in heptane.

[dodecanol] = 0 M		[dodecanol] = 0.0637 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0059	0.00	0.0040
2.28	0.0062	2.28	0.0055
15.83	0.0111	15.83	0.0105
24.65	0.0224	24.65	0.0145
49.20	0.0478	49.20	0.0365
73.20	0.0573	73.20	0.0412
97.33	0.0699	97.33	0.0498
120.33	0.0786	120.33	0.0547
144.33	0.0811	144.33	0.0610

[dodecanol] = 0.1594 M		[dodecanol] = 0.2550 M	
time (hr)	absorbance	time (hr)	absorbance
0.00	0.0041	0.00	0.0041
2.28	0.0053	2.28	0.0045
15.83	0.0095	15.83	0.0085
24.65	0.0125	24.65	0.0120
49.20	0.0298	49.20	0.0274
73.20	0.0368	73.20	0.0359
97.33	0.0423	97.33	0.0400
120.33	0.0510	120.33	0.0516
144.33	0.0545	144.33	0.0524

Appendix B: Apparent rate constant, k_h, data calculated from the Fourier Transform Infrared Spectroscopic Measurement.

Table B-1 Apparent rate constant at different NH_3 concentration. Composition of microemulsions: 0.1901 M DP6, H_2O:TEOS = 7.67:1, and 0.1494 M TEOS in heptane.

NH_3, M	k_h, hr^{-1}		
	run # 1	run # 2	run # 3
0.0156	0.0054	0.0057	0.0044
0.0521	0.0159	x	x
0.0781	0.0324	0.0435	x
0.1249	0.0578	0.0669	x

Table B-2 Apparent rate constant at different DP6 concentration. Composition of microemulsion: 0.0156 M NH_3, H_2O:TEOS=7.67:1, and 0.1494 M TEOS in heptane.

[DP6], M	k_h, hr^{-1}		
	run # 1	run # 2	run # 3
0.1014	0.0099	0.0111	x
0.1267	0.0074	x	x
0.1521	0.0069	x	x
0.1901	0.0054	0.0057	0.0044
0.2534	0.005	0.0046	0.0067
0.3169	0.0043	0.0038	0.0072

Table B-3 Apparent rate constant at different H_2O:TEOS molar ratio. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, and 0.1494 M TEOS in heptane.

H_2O:TEOS molar ratio	k_h, hr^{-1}		
	run # 1	run # 2	run # 3
2.66	0.0079	0.0064	x
4.89	0.0068	0.0072	x
7.67	0.0057	0.0054	0.0044

Table B-4 Apparent rate constant at different butanol concentration. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, 0.1494 M TEOS, and H_2O:TEOS=7.67:1 in heptane.

[Butanol], M	kh, hr-1	
	run # 1	run # 2
0	0.0057	0.0054
0.0637	0.0072	0.0088
0.1594	0.0079	0.0073
0.2550	0.0086	0.0075

Table B-5 Apparent rate constant at different octanol concentration. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, 0.1494 M TEOS, and H_2O:TEOS=7.67:1 in heptane.

[octanol], M	kh, hr-1	
	run # 1	run # 2
0	0.0057	0.0054
0.0637	0.0067	0.0070
0.1594	0.0078	0.0074
0.2550	0.0089	0.0070

Table B-6 Apparent rate constant at different dodecanol concentration. Composition of microemulsions: 0.0156 M NH_3, 0.1901 M DP6, 0.1494 M TEOS, and H_2O:TEOS=7.67:1 in heptane.

[Dodecanol], M	kh, hr-1	
	run # 1	run # 2
0	0.0057	0.0054
0.0637	0.0065	x
0.1594	0.0070	x
0.2550	0.0083	x

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