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Table A-2 No. of days CTAB required to be adsorbed on 0.122 g. MCM-41
pore size 21A⁰

Time, day	Concentration (micromolar)		
	C8TAB	C12TAB	C16TAB
0	62000.0	62000.0	62000.0
1	60891.2	61184.2	61757.0
2	59992.7	60900.5	61632.9
3	59912.5	60718.9	61462.2
4	59556.1	60472.1	61251.0
5	59250.1	60260.8	61040.5
6	58999.3	60150.3	60797.2
7	58992.4	59890.5	60252.8
8	58986.2	59997.0	59997.3
9	58986.1	59887.0	59997.3

Table A-3 No. of days CTAB required to be adsorbed on
0.122 g. MCM-41 pore size 26A⁰

Time, day	Concentration (micromolar)		
	C8TAB	C12TAB	C16TAB
0	62000.0	62000.0	62000.0
1	58631.1	60388.3	60921.1
2	58004.9	59471.8	59928.9
3	57759.2	58325.5	59748.0
4	57412.4	58000.1	58995.2
5	56982.3	57792.4	58739.3
6	56741.2	57589.6	58683.4
7	56295.9	57350.0	58671.5
8	56295.5	57350.1	58671.6
9	56295.6	57350.0	58671.4

Table A-4 No. of days CTAB required to be adsorbed on 0.122 g.MCM-41
pore size 36Å⁰

Time, day	Concentration (micromolar)		
	C8TAB	C12TAB	C16TAB
0	62000.0	62000.0	62000.0
1	52857.1	54928.0	60784.8
2	52708.4	53956.6	57951.4
3	52540.1	53885.0	57829.3
4	51394.3	53513.3	57804.7
5	51288.4	52738.2	57399.9
6	50426.7	52700.2	57295.0
7	50012.4	52681.7	56955.5
8	50010.2	52680.1	56953.3
9	50010.2	52680.1	56953.3

Table A-5 C8TAB Adsorption isotherm on MCM-41 pore size 21A⁰, solution 15ml

No.	Initial C8TAB Conc. (micromol/l)	Final C8TAB Conc. (micromol/l)	C8TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	500	466.25	4.150	0.0025
2	1000	964.25	4.395	0.0027
3	3000	2768.40	28.475	0.0174
4	5000	4080.20	113.090	0.0693
5	7000	5103.71	233.150	0.1429
6	9000	7197.67	221.598	0.1358
7	11000	9203.92	220.830	0.1353
8	13000	11206.11	220.560	0.1352
9	15000	13214.41	219.540	0.1345
10	17000	15134.05	229.420	0.1406
11	19000	17361.78	201.420	0.1234
12	21000	19346.53	203.296	0.1246
13	23000	21353.57	202.430	0.1240
14	25000	23107.70	232.660	0.1426
15	27000	25118.27	231.360	0.1418
16	29000	27103.90	233.128	0.1429
17	31000	28865.56	262.431	0.1608
18	33000	30661.92	287.468	0.1762
19	35000	32651.36	288.767	0.1770
20	37000	34520.13	304.902	0.1868
21	39000	36518.62	305.087	0.1870
22	41000	38550.30	301.193	0.1846
23	43000	40539.74	302.491	0.1854
24	45000	42496.00	307.869	0.1887
25	47000	44492.98	308.240	0.1889
26	49000	46441.69	314.546	0.1927
27	51000	48278.78	334.576	0.2050
28	53000	50277.27	334.762	0.2051
29	55000	52272.75	335.318	0.2055
30	57000	54097.77	356.832	0.2187
31	59000	56095.75	357.080	0.2188
32	61000	57974.89	371.940	0.2279
33	62000	58980.12	371.297	0.2275

Table A-6 C8TAB Adsorption isotherm on MCM-41 pore size 26A⁰, solution 15 ml

No.	Initial C8TAB Conc. (micromol/l)	Final C8TAB Conc. (micromol/l)	C8TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	500	460.55	4.850	0.0034
2	1000	957.02	5.284	0.0037
3	3000	2711.89	35.423	0.0247
4	5000	3902.63	134.923	0.0939
5	7000	5493.60	185.213	0.1289
6	9000	7103.23	233.209	0.1623
7	11000	9014.45	244.125	0.1699
8	13000	11025.54	242.761	0.1690
9	15000	13012.11	244.413	0.1701
10	17000	14883.56	260.218	0.1811
11	19000	16631.87	291.164	0.2026
12	21000	18396.44	320.110	0.2228
13	23000	20067.48	360.556	0.2509
14	25000	21891.36	382.209	0.2660
15	27000	23668.15	409.654	0.2851
16	29000	25354.95	448.162	0.3119
17	31000	27087.33	481.066	0.3348
18	33000	28909.69	502.907	0.3500
19	35000	30387.30	567.135	0.3947
20	37000	32153.57	595.873	0.4147
21	39000	34035.53	610.385	0.4248
22	41000	35987.62	616.277	0.4289
23	43000	37942.04	621.880	0.4328
24	45000	39794.79	639.985	0.4454
25	47000	41663.90	656.078	0.4566
26	49000	43637.02	659.383	0.4589
27	51000	45610.14	662.688	0.4612
28	53000	47725.84	648.463	0.4513
29	55000	49632.34	659.958	0.4593
30	57000	51499.12	676.338	0.4707
31	59000	53441.85	683.379	0.4756
32	61000	55294.60	701.483	0.4882
33	62000	56295.60	701.361	0.4881

Table A-7 C8TAB Adsorption isotherm on MCM-41 pore size 36Å⁰, solution 15 ml

No.	Initial C8TAB Conc. (micromol/l)	Final C8TAB Conc. (micromol/l)	C8TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq nm)
1	500	458.80	5.066	0.003
2	1000	931.16	8.464	0.005
3	3000	2630.35	45.449	0.025
4	5000	3486.50	186.086	0.100
5	7000	5340.72	204.010	0.110
6	9000	7280.38	211.428	0.114
7	11000	9099.37	233.684	0.126
8	13000	11008.86	244.812	0.132
9	15000	12657.57	288.004	0.155
10	17000	14085.77	358.307	0.193
11	19000	15211.57	465.791	0.251
12	21000	15983.68	616.761	0.333
13	23000	17080.92	727.756	0.392
14	25000	18939.02	745.202	0.402
15	27000	20362.98	816.027	0.440
16	29000	22566.12	791.051	0.427
17	31000	24347.80	817.894	0.441
18	33000	26227.12	832.731	0.449
19	35000	28196.95	836.440	0.451
20	37000	30090.08	849.580	0.458
21	39000	31985.77	862.405	0.465
22	41000	33487.99	923.608	0.498
23	43000	34816.18	1006.207	0.543
24	45000	36723.52	1017.600	0.549
25	47000	38651.94	1026.401	0.553
26	49000	41108.52	970.264	0.523
27	51000	42145.48	1088.670	0.587
28	53000	43974.30	1109.717	0.598
29	55000	45653.38	1149.175	0.620
30	57000	47059.41	1222.204	0.659
31	59000	48742.63	1261.151	0.680
32	61000	50591.79	1279.698	0.690
33	62000	51591.79	1279.698	0.690

Table A-8 C12TAB Adsorption isotherm on MCM-41 pore size 21A⁰, solution 15ml

No.	Initial C12TAB Conc. (micromol/l)	Final C12TAB Conc. (micromol/l)	C12TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	500	472.44	3.389	0.002
2	1000	818.99	22.256	0.014
3	3000	2682.66	39.017	0.024
4	5000	3699.85	159.855	0.098
5	7000	5777.68	150.285	0.092
6	9000	7322.87	206.205	0.126
7	11000	9548.69	178.440	0.109
8	13000	11144.62	228.120	0.140
9	15000	13125.83	230.431	0.141
10	17000	15129.54	229.975	0.141
11	19000	17114.45	231.829	0.142
12	21000	19144.62	228.120	0.140
13	23000	21099.37	233.684	0.143
14	25000	23114.45	231.829	0.142
15	27000	25114.45	231.829	0.142
16	29000	27099.37	233.684	0.143
17	31000	29090.23	234.808	0.144
18	33000	31039.03	241.102	0.148
19	35000	32931.44	254.331	0.156
20	37000	34925.45	255.068	0.156
21	39000	36917.58	256.035	0.157
22	41000	38933.44	254.085	0.156
23	43000	40993.78	246.666	0.151
24	45000	42933.44	254.085	0.156
25	47000	44948.53	252.230	0.155
26	49000	46918.36	255.940	0.157
27	51000	48903.27	257.794	0.158
28	53000	50917.99	255.985	0.157
29	55000	52888.19	259.649	0.159
30	57000	54586.50	296.742	0.182
31	59000	56552.45	300.928	0.184
32	61000	58552.27	300.950	0.184
33	62000	59556.33	300.451	0.184

Table A-9 C12TAB Adsorption isotherm on MCM-41 pore size 26A^o, solution 15 ml

No.	Initial C12TAB Conc. (micromol/l)	Final C12TAB Conc. (micromol/l)	C12TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	500	399.20	12.393	0.009
2	1000	811.71	23.150	0.016
3	3000	2552.72	54.993	0.038
4	5000	3761.22	152.309	0.106
5	7000	5777.68	150.285	0.105
6	9000	7191.16	222.398	0.155
7	11000	9389.98	197.953	0.138
8	13000	10561.84	299.774	0.209
9	15000	12101.17	356.414	0.248
10	17000	13864.04	385.569	0.268
11	19000	15809.56	392.267	0.273
12	21000	17737.08	401.179	0.279
13	23000	19619.11	415.683	0.289
14	25000	21599.20	418.131	0.291
15	27000	23517.39	428.189	0.298
16	29000	25458.96	435.374	0.303
17	31000	27377.15	445.432	0.310
18	33000	29190.17	468.422	0.326
19	35000	30687.64	530.208	0.369
20	37000	32816.20	514.402	0.358
21	39000	34804.51	515.839	0.359
22	41000	36862.94	508.654	0.354
23	43000	38652.58	534.518	0.372
24	45000	40617.52	538.829	0.375
25	47000	42605.84	540.266	0.376
26	49000	44582.47	543.140	0.378
27	51000	46453.91	558.945	0.389
28	53000	48582.47	543.140	0.378
29	55000	50874.63	507.218	0.353
30	57000	52453.91	558.945	0.389
31	59000	54360.42	570.440	0.397
32	61000	56348.73	571.877	0.398
33	62000	57350.00	571.721	0.398

Table A-10 C12TAB Adsorption isotherm on MCM-41 pore size 36A^o, solution 15 ml

No.	Initial C12TAB Conc. (micromol/l)	Final C12TAB Conc. (micromol/l)	C12TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq nm)
1	500	367.86	16.247	0.009
2	1000	828.48	21.088	0.011
3	3000	1614.82	170.309	0.092
4	5000	1851.58	387.101	0.209
5	7000	3305.81	454.204	0.245
6	9000	3472.66	679.591	0.366
7	11000	4794.71	762.945	0.411
8	13000	5504.90	921.529	0.497
9	15000	7108.65	970.248	0.523
10	17000	9987.88	862.146	0.465
11	19000	13139.95	720.498	0.388
12	21000	14376.94	814.311	0.439
13	23000	16631.03	783.070	0.422
14	25000	18488.35	800.613	0.432
15	27000	20731.13	770.763	0.416
16	29000	22457.94	804.352	0.434
17	31000	24396.89	811.858	0.438
18	33000	26744.36	769.136	0.415
19	35000	28323.16	820.923	0.443
20	37000	30761.94	766.975	0.414
21	39000	32120.85	845.797	0.456
22	41000	33948.13	867.033	0.467
23	43000	35553.39	915.567	0.494
24	45000	37085.32	973.116	0.525
25	47000	39114.38	969.543	0.523
26	49000	40562.29	1037.423	0.559
27	51000	42532.78	1041.052	0.561
28	53000	44701.15	1020.350	0.550
29	55000	46700.82	1020.391	0.550
30	57000	48699.74	1020.524	0.550
31	59000	50697.85	1020.756	0.550
32	62000	53552.76	1038.595	0.560

Table A-11 C16TAB Adsorption isotherm on MCM-41 pore size 21A⁰, solution 15ml

No.	Initial C16TAB Conc. (micromol/l)	Final C16TAB Conc. (micromol/l)	C16TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	25	22.28	0.334	0.0002
2	50	43.01	0.859	0.0003
3	200	194.72	0.649	0.0004
4	350	340.25	1.199	0.0007
5	500	487.41	1.548	0.0009
6	650	633.26	2.058	0.0013
7	800	784.15	1.949	0.0012
8	950	904.44	5.602	0.0034
9	1100	1047.20	6.491	0.0040
10	1250	1192.68	7.048	0.0043
11	1400	1324.58	9.273	0.0057
12	1550	1468.73	9.992	0.0061
13	1700	1598.94	12.425	0.0076
14	1850	1779.72	8.641	0.0053
15	2000	1855.09	17.817	0.0109
16	4000	3881.74	14.540	0.0089
17	6000	5079.85	113.133	0.0693
18	8000	7249.88	92.228	0.0565
19	10000	8554.76	177.693	0.1089
20	12000	10840.60	142.549	0.0874
21	14000	12525.96	181.234	0.1111
22	16000	13931.31	254.347	0.1559
23	18000	15839.68	265.613	0.1628
24	20000	18385.97	198.446	0.1216
25	22000	20476.48	187.318	0.1148
26	24000	22446.31	191.027	0.1171
27	26000	24431.23	192.882	0.1182
28	28000	26416.14	194.737	0.1193
29	30000	28385.97	198.446	0.1216
30	32000	30355.80	202.155	0.1239
31	34000	32385.97	198.446	0.1216

32	36000	34340.72	204.010	0.1250
33	38000	36310.55	207.719	0.1273
34	40000	38265.30	213.283	0.1307
35	42000	40310.55	207.719	0.1273
36	44000	42265.30	213.283	0.1307
37	46000	44250.21	215.138	0.1318
38	48000	46220.05	218.847	0.1341
39	50000	48189.88	222.556	0.1364
40	52000	50159.71	226.265	0.1387
41	54000	52129.54	229.975	0.1409
42	56000	54023.95	242.957	0.1489
43	58000	56008.86	244.812	0.1500
44	60000	58008.86	244.812	0.1500
45	62000	59995.49	246.456	0.1510

Table A-12 C16TAB Adsorption isotherm on MCM-41 pore size 26A⁰, solution 15 ml

No.	Initial C16TAB Conc. (micromol/l)	Final C16TAB Conc. (micromol/l)	C16TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	25	19.96	0.620	0.0004
2	50	41.11	1.093	0.0008
3	200	174.33	3.156	0.0022
4	350	300.36	6.103	0.0042
5	500	451.42	5.973	0.0042
6	650	593.25	6.977	0.0049
7	800	746.47	6.582	0.0046
8	950	866.56	10.259	0.0071
9	1100	996.56	12.718	0.0089
10	1250	1098.41	18.638	0.0130
11	1400	1209.15	23.465	0.0163
12	1550	1331.60	26.852	0.0187
13	1700	1398.85	37.027	0.0258
14	1850	1539.16	38.218	0.0266
15	2000	1675.70	39.873	0.0278
16	4000	3035.27	118.614	0.0826
17	6000	4811.84	146.085	0.1017
18	8000	6922.50	132.480	0.0922
19	10000	7277.60	334.721	0.2330
20	12000	9532.03	303.439	0.2112
21	14000	10904.58	380.584	0.2649
22	16000	12841.70	388.316	0.2702
23	18000	15146.13	350.885	0.2442
24	20000	17300.40	331.919	0.2310
25	22000	19312.08	330.482	0.2300
26	24000	21288.71	333.355	0.2320
27	26000	23265.34	336.229	0.2340
28	28000	25253.65	337.666	0.2350
29	30000	27218.59	341.977	0.2380
30	32000	29195.22	344.850	0.2400
31	34000	31218.59	341.977	0.2380
32	36000	33183.53	346.287	0.2410
33	38000	35148.47	350.598	0.2440
34	40000	37101.72	356.346	0.2480
35	42000	39148.47	350.598	0.2440
36	44000	41101.72	356.346	0.2480
37	46000	43090.04	357.782	0.2490
38	48000	45054.98	362.093	0.2520
39	50000	47022.25	366.116	0.2548
40	52000	48799.04	393.561	0.2739
41	54000	50844.62	387.957	0.2700

42	56000	52856.30	386.520	0.2690
43	58000	54841.11	388.388	0.2703
44	60000	56671.66	409.223	0.2848
45	62000	58671.00	409.303	0.2849

Table A-13 C16TAB Adsorption isotherm on MCM-41 pore size 36A⁰, solution 15 ml

No.	Initial C16TAB Conc. (micromol/l)	Final C16TAB Conc. (micromol/l)	C16TAB Adsorption (micromol/g MCM-41)	Adsorption density (Molecules/sq.nm)
1	25	17.45	0.928	0.0005
2	50	34.91	1.855	0.0010
3	200	184.74	1.876	0.0010
4	350	291.74	7.163	0.0039
5	500	429.94	8.614	0.0046
6	650	574.58	9.273	0.0050
7	800	721.56	9.644	0.0052
8	950	868.02	10.080	0.0054
9	1100	935.63	20.209	0.0109
10	1250	1018.75	28.432	0.0153
11	1400	1049.38	43.109	0.0232
12	1550	1085.90	57.061	0.0308
13	1700	1140.97	68.733	0.0371
14	1850	1255.72	73.067	0.0394
15	2000	1283.61	88.081	0.0475
16	3000	1876.22	138.170	0.0745
17	5000	3351.28	202.712	0.1093
18	7000	3917.91	378.945	0.2043
19	9000	4283.88	579.851	0.3126
20	11000	5569.68	667.662	0.3600
21	13000	8482.23	555.463	0.2995
22	15000	10528.84	549.733	0.2964
23	17000	12561.84	545.675	0.2942
24	19000	14631.52	537.108	0.2896
25	21000	16290.21	579.073	0.3122
26	23000	18308.58	576.814	0.3110
27	25000	20234.85	585.879	0.3159
28	27000	22194.12	590.887	0.3186
29	29000	24215.24	588.290	0.3172
30	31000	26376.64	568.445	0.3065
31	33000	28541.06	548.230	0.2956
32	35000	30639.11	536.175	0.2891
33	37000	32750.74	522.451	0.2817
34	39000	34655.70	534.135	0.2880

35	41000	36764.04	520.815	0.2808
36	43000	38648.16	535.062	0.2885
37	45000	40480.73	555.649	0.2996
38	47000	42515.42	551.383	0.2973
39	49000	44301.22	577.719	0.3115
40	51000	46268.04	581.799	0.3137
41	53000	48171.50	593.669	0.3201
42	55000	50127.75	599.047	0.3230
43	57000	52115.68	600.531	0.3238
44	59000	53919.59	624.641	0.3368
45	61000	55916.57	625.012	0.3370
46	62000	56908.64	625.987	0.3375

Table A-14 Number of carbons in the surfactant tail and maximum adsorption density

Pore size 21A⁰

No. of carbons in surfactant tail	Maximum adsorption density (Molecule/ nm ²)
C8TAB	0.23
C12TAB	0.18
C16TAB	0.15

Pore size 26A⁰

No. of carbons in surfactant tail	Maximum adsorption density (Molecule/ nm ²)
C8TAB	0.48
C12TAB	0.40
C16TAB	0.28

Pore size 36A⁰

No. of carbons in surfactant tail	Maximum adsorption density (Molecule/ nm ²)
C8TAB	0.69
C12TAB	0.56
C16TAB	0.34

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